Karim Rakhimov

CURRICULUM VITAE · PhD, DSc

Institute of Mathematics, Academy of Sciences of Uzbekistan

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RESEARCH INTERESTS

Complex dynamics; pluripotential theory; complex analysis; ergodic theory; holomorphic and polynomial-like maps; Green currents; meromorphic connections on Riemann surfaces; capacity and Hausdorff estimates for arithmetical sets.

ACADEMIC APPOINTMENTS

02/2024 — Present
Leading Researcher
Institute of Mathematics, Academy of Sciences of Uzbekistan

Present
Associate Professor
National University of Uzbekistan

2023 — 2024
Research Fellow
National University of Singapore

2022 — 2023
Associate Professor
National University of Uzbekistan

2020 — 2022
Postdoctoral Researcher
CNRS · University of Lille, France

2019 — 2020
Assistant Professor
National University of Uzbekistan

2012 — 2016
Assistant Professor
National University of Uzbekistan

EDUCATION

2016 — 2020
PhD in Mathematics
University of Pisa, Italy
Supervisor: Prof. Marco Abate. Thesis: “Dynamics of geodesics for meromorphic connections on Riemann surfaces”. Defended on 20 March 2020.

2010 — 2012
MSc in Mathematics
National University of Uzbekistan
Supervisor: Prof. Azimbay Sadullaev. Thesis: $\mathbb{C}^n$-capacity based on plurisubharmonic functions.

2006 — 2010
BSc in Mathematics
Navoi State Pedagogical Institute
Supervisor: Prof. Sevdiyor Imomkulov.

Research publications

Published work · 1–10

1. Fabrizio Bianchi, Tien-Cuong Dinh, Karim Rakhimov.
Hölder continuity and laminarity of the Green currents for Hénon-like maps
Journal of the Institute of Mathematics of Jussieu 25(2), 1363–1392 (2026).
DOI: 10.1017/S1474748025101588

2. Nurali Akramov, Karim Rakhimov.
Capacity Dimension of the Brjuno Set in $\mathbb{C}^n$
Complex Analysis and Operator Theory 20(5), Article 120 (2026).
DOI: 10.1007/s11785-026-01970-0

3. Marco Abate, Karim Rakhimov.
Dynamics of Fuchsian meromorphic connections with real periods
Annals of Global Analysis and Geometry 69, Article 9 (2026).
DOI: 10.1007/s10455-026-10033-8

4. Karim Rakhimov.
Flat structure of meromorphic connections on Riemann surfaces
Journal of Geometric Analysis 35, Article 368 (2025).
DOI: 10.1007/s12220-025-02190-2

5. Sardor Bazarbaev, Fabrizio Bianchi, Karim Rakhimov.
On the support of measures of large entropy for polynomial-like maps
Analysis and Mathematical Physics 15, Article 69 (2025).
DOI: 10.1007/s13324-025-01071-9

6. Kobiljon Kuldoshev, Karim Rakhimov.
On the Hölder continuity of weighted m-extremal functions
Journal of Siberian Federal University. Mathematics & Physics 18(6), 809–818 (2025).

7. Karim Rakhimov, Kobiljon Kuldoshev.
Hölder continuity of a weighted m-Green function and weighted m-subharmonic measure
Reports of the Academy of Sciences of the Republic of Uzbekistan, no. 5, 21–25 (2025).

8. Karim Rakhimov, Nurali Akramov.
On the capacity dimension of non-linearizability loci in $\mathbb{C}^n$
Reports of the Academy of Sciences of the Republic of Uzbekistan, no. 6 (2025).

9. Fabrizio Bianchi, Tien-Cuong Dinh, Karim Rakhimov.
Monotonicity of dynamical degrees for Hénon-like and polynomial-like maps
Transactions of the American Mathematical Society 377(9), 6595–6618 (2024).
DOI: 10.1090/tran/9225

10. Fabrizio Bianchi, Karim Rakhimov.
Strong probabilistic stability in holomorphic families of endomorphisms of $\mathbb{P}^k(\mathbb{C})$ and polynomial-like maps
International Mathematics Research Notices 2024(12), 9875–9892 (2024).
DOI: 10.1093/imrn/rnae081

Research publications — continued

11. Karim Rakhimov, Shomurod Shopulatov.
A mean value criterion for plurisubharmonic functions
Complex Variables and Elliptic Equations 67(12), 2866–2877 (2022).
DOI: 10.1080/17476933.2021.1954623

12. Karim Rakhimov.
Capacity dimension of the Perez–Marco set
Topics in Several Complex Variables, Contemporary Mathematics 662, 131–137 (2016).
DOI: 10.1090/conm/662/13323

13. Azimbay Sadullaev, Karim Rakhimov.
Capacity dimension of the Brjuno set
Indiana University Mathematics Journal 64(6), 1829–1834 (2015).
DOI: 10.1512/iumj.2015.64.5690

14. A. S. Sadullaev, S. A. Imomkulov, K. Kh. Rakhimov.
Bounded subharmonic functions possess the Lebesgue property at each point
Mathematical Notes 96(6), 992–995 (2014).
DOI: 10.1134/S0001434614110388

15. Karim Rakhimov.
$\mathbb{C}^n$-capacity defined with the Laplacian
Uzbek Mathematical Journal, no. 2, 99–105 (2012). *In Russian.*

16. Karim Rakhimov.
$\mathbb{C}^n$-capacity based on plurisubharmonic functions
Reports of the Academy of Sciences of the Republic of Uzbekistan, no. 4, 6–9 (2012). *In Russian.*

FORTHCOMING ARTICLE

A1. Maxence Brévard, Karim Rakhimov.
Propagation of equilibrium states in stable families of endomorphisms of $\mathbb{P}^k(\mathbb{C})$
Rivista di Matematica della Università di Parma · To appear.
arXiv:2405.12033

PREPRINTS

P1. Davrbek Oltiboev, Karim Rakhimov, Marks Ruziboev.
Linear response for random systems with a cusp
arXiv:2608.26969 (2026).

P2. Sardor Bazarbaev, Karim Rakhimov.
Exact logarithmic Hausdorff and capacity exponents of the non-Brjuno set
arXiv:2608.29779 (2026).

P3. Fabrizio Bianchi, Sobir Boymurodov, Karim Rakhimov.
On the support of measures of large entropy for automorphisms of Kähler manifolds
arXiv:2606.08746 (2026).

Academic service & education

ACADEMIC SERVICE AND OUTREACH

2025 — Present	**Sadullaev Olympiad** Founder and organizer of an olympiad for university students.
2024 — Present	**π Olympiad** Organizer of the weekly university mathematics olympiad.
2024 — Present	**Maxsus kurslar** Co-organizer of the advanced-course programme for young researchers.
2022 — Present	**Sadullaev Seminar** Co-organizer of the seminar “Modern Problems of Complex Analysis”.
2020	**IMC** Jury member and team leader at the International Mathematics Competition for University Students.
2018	**Al-Khorezmi International Olympiad** Deputy Chairman of the Jury.
2016 / 2015	**SEEMOUS / IMC** Jury member and National University of Uzbekistan team leader.

RESEARCH SUPERVISION

Kobiljon Kuldoshev, Sardor Bazarbaev, Nurali Akramov, Sobir Boymurodov, Davrbek Oltiboyev.

BOOKS AND TEACHING MATERIALS

UZSML & Nabla Olimpiadalari. A. Pirnapasov, Kh. Egamberganov, K. Rakhimov. KAX, 2020. In Uzbek.

Analizning nostandart masalalari. A. Azizov, K. Rakhimov. KAX, 2021. In Uzbek; preprint.

TEACHING AND EDUCATIONAL PROJECTS

Courses in complex analysis, ergodic theory and complex dynamical systems. University olympiad training. Isbot: an educational project with mathematics books, exercises and tests.

LANGUAGES

Uzbek, English, Russian and Tajik; working knowledge of Turkish and Italian.

Google Scholar · ORCID · Telegram