

## Khudoyor Mamayusupov

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CONTACT INFORMATION	National Research University Higher School of Economics, Russian Federation Faculty of Mathematics, Usacheva 6, Moscow, Russia phone: +7 916 6558328 email: <a href="mailto:kmamayusupov@hse.ru">kmamayusupov@hse.ru</a> links to Homepage and Google scholar		
RESEARCH INTERESTS	Dynamical Systems, Newton's Method, Holomorphic Surgery in Dynamical Systems, Limit Cycles of Systems of ODE		
EDUCATION	<b>Jacobs University Bremen, Department of Mathematics and Logistics</b> Ph.D. Mathematics 2015 <ul style="list-style-type: none"><li>• Advisor: Dierk Schleicher</li></ul> <b>National University of Uzbekistan, Department of Mechanics and Mathematics</b> M.Sc. Mathematics, 2007–2009 <ul style="list-style-type: none"><li>• Advisor: Abdulla Azamov</li></ul> <b>Karshi State University, Department of Physics and Mathematics</b> B.Sc. Mathematics, 2003–2007		
INVITED CONFERENCE AND SEMINAR TALKS, POSTERS	Jan. 03-06	2019	<b>Talk:</b> <i>A parameter space of cubic Newton maps with parabolics</i> , Topological methods in dynamics and related topics, Nizhny Novgorod, Russia
	Nov. 26-30	2018	<b>Poster:</b> <i>The space of cubic Newton maps with persistent parabolics</i> , Real and Complex Dynamical Systems, International conference on the occasion of Prof. Yulij Ilyashenko's 75th birthday, Moscow, Russia
	Oct. 31–Nov. 2	2017	Analytic and Algebraic Methods in Differential Equations, IITP RAS, Moscow, Russia
	June 19–23	2017	<b>Poster:</b> <i>Newton maps of complex exponential functions</i> , Hyperbolic Dynamics, ICTP, Trieste, Italy
	May 19–22	2017	Dynamics, Geometry, and Groups, Bremen, Germany
	August 04	2016	<b>Talk:</b> <i>On post-critically minimal Newton maps</i> , Mathematics Colloquium, Inha University, Incheon, S. Korea
	April 22–23	2016	<b>Talk:</b> <i>A class of generalized Newton maps with connected Julia set</i> , "Modern problems of Analysis", Karshi State University, Uzbekistan
	October 12–16	2015	Fractal Geometry and Dynamics, Bedlewo, Poland
	October 08	2015	<b>Talk:</b> <i>On post-critically minimal Newton maps</i> , Seminar IMPAN, Warsaw, Poland
	Sept. 28-Oct. 02	2015	Ergodic theory and holomorphic dynamics, Vienna, Austria
	September 15–19	2015	Topics in Analysis and Holomorphic Dynamics, Warsaw, Poland
	August 17–21	2015	<b>Poster:</b> <i>Families of Newton maps and parabolic surgery</i> , Dynamical Developments: a conference in Complex Dynamics and Teichmüller theory, Jacobs University, Bremen, Germany
	September 21–26	2014	<b>2nd Heidelberg Laureate Forum</b> , Abel, Fields and Turing Laureates Meet the Next Generation, Heidelberg, Germany
	July 21–25	2014	<b>Poster:</b> <i>Parabolic Newton maps and surgery</i> , Perspectives of Modern Complex Analysis, Bedlewo, Poland
	May 11–16	2014	Topological and geometric methods in low-dimension, Moscow, Russia

April 7–11	2014	Bremen Winter School on Kleinian Groups and Transcendental Dynamics, Bremen, Germany
October 14–18	2013	Topological and combinatorial problems in one dimensional complex dynamics, Centro di Ricerca Matematica Ennio De Giorgi, Italy
June 10–14	2013	<b>Talk:</b> <i>Parabolic surgery and its application to Newton's method</i> , Topics in Complex Dynamics, Universitat de Barcelona, Barcelona, Spain
May 20–24	2013	The role of complex analysis in complex dynamics, Edinburgh, UK
September 27–30	2012	Workshop, MLC Status and Quo Vadis?, Denmark
July 24–Aug. 13	2011	Penn State-Göttingen International Summer School on Dynamical Systems, Göttingen, Germany
April 27–30	2009	Computational technologies and mathematical modeling, Tashkent, Uzbekistan
September 28–30	2009	Control and Optimization of Dynamical Systems, CODS-2009, Tashkent, Uzbekistan
April 13–14	2007	<b>Talk:</b> <i>Probabilistic characteristics of solutions of system of linear differential equations with stochastic coefficients</i> , “Science, development and young population”, Tashkent, Uzbekistan.

HONORS AND AWARDS

2010–2015	Merit-Based Scholarship, Germany
2003–2009	Merit-Based Scholarship, Uzbekistan
2006–2007	<b>Ulugbek</b> Scholarship for gifted students, Uzbekistan
2006	<b>Third prize</b> , 13 <sup>th</sup> International Mathematics Competition for University Students (IMC), Ukraine
2006	<b>First place</b> , National Mathematics Olympiad, Uzbekistan
2007	<b>Third place</b> , Contest among gifted university students of Uzbekistan, <i>Conference talk: Probabilistic characteristics of solutions of system of linear differential equations with stochastic coefficients</i>
2007	<b>Semi-final</b> ACM International Collegiate Programming Contest, ACM ICPC 2006-2007 NEERC, Tashkent, Uzbekistan.

WORK EXPERIENCE

**National Research University Higher School of Economics, Moscow, Russia**  
September 2017-present. Postdoctoral Fellow at Faculty of Mathematics

**Jacobs University Bremen, Germany**

October 2016-August 2017 Postdoctoral Fellow at Department of Mathematics and Logistics

**Inha University, Republic of Korea**

February 2016-August 2016 Researcher at Department of Mathematics

**Institute of Mathematics, Poland**

September 2015-January 2016 Visiting PhD student at Banach Center, IMPAN

**Jacobs University Bremen, Germany**

September 2010-August 2014 Teaching Assistant for the following courses at Department of Mathematics and Logistics

Spring	2014	Topics in Complex Analysis
Spring	2012	Numerical methods
Fall	2010, 2011	Advanced Linear Algebra, Stochastic Processes
Spring	2011	Linear Algebra, Probability, Statistics
Spring	2011	Ordinary Differential Equations

**Karshi State University, Karshi, Uzbekistan**

September 2009-August 2010 Assistant Lecturer for the following courses at the Faculty of Mathematics

Fall 2009 Spring 2010 Mathematical analysis I, Probability theory

RELEVANT SKILLS	Languages: English, Russian, German (basic), Uzbek Computer: Mathematica, L <sup>A</sup> T <sub>E</sub> X												
OTHER ACTIVITIES	<table border="0"> <tr> <td>July 13-19</td> <td>2014</td> <td><b>Jury and local organizer</b>, International Tournament of Young Mathematicians, Bremen, Germany</td> </tr> <tr> <td>2011, 2013,</td> <td>2015, 2017</td> <td><b>Local organizer</b>, International Mathematical Summer School for Students, Jacobs University Bremen, Bremen, Germany</td> </tr> <tr> <td>August</td> <td>2012</td> <td>Modern Mathematics – International Summer School for Students, ENS Lyon, Lyon, France</td> </tr> <tr> <td>July 14-24</td> <td>2011</td> <td><b>Team guide</b> IMO2011, Amsterdam, Netherlands</td> </tr> </table>	July 13-19	2014	<b>Jury and local organizer</b> , International Tournament of Young Mathematicians, Bremen, Germany	2011, 2013,	2015, 2017	<b>Local organizer</b> , International Mathematical Summer School for Students, Jacobs University Bremen, Bremen, Germany	August	2012	Modern Mathematics – International Summer School for Students, ENS Lyon, Lyon, France	July 14-24	2011	<b>Team guide</b> IMO2011, Amsterdam, Netherlands
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July 14-24	2011	<b>Team guide</b> IMO2011, Amsterdam, Netherlands											
PUBLICATION LIST	<ol style="list-style-type: none"> <li>1. <i>Newton's method as a global root finder</i>, Proceedings of IV International Scientific Conference “Actual Problems of Applied Mathematics.” (2018)</li> <li>2. <i>Clusters of roots of polynomials</i>, in preparation.</li> <li>3. <i>A parameter plane of cubic Newton maps with a parabolic fixed point at infinity</i>, in preparation.</li> <li>4. <i>Periodic solutions of differential equations via a Variational method</i>, in preparation.</li> <li>5. <i>Dynamics on immediate basins for parabolic Newton maps</i>, arXiv:1902.01190, Preprint, (2019)</li> <li>6. <i>A characterization of postcritically minimal Newton maps of complex exponential functions</i>, Ergodic Theory and Dynamical Systems. <a href="http://doi.org/10.1017/etds.2017.137">http://doi.org/10.1017/etds.2017.137</a> (2018)</li> <li>7. <i>Newton maps of complex exponential functions and parabolic surgery</i>, Fundamenta Mathematicae, Vol. 241. No. 3. P. 265-290. (2018)</li> <li>8. (joint with K. Bogdanov, S. Mukherjee and D. Schleicher), <i>Antiholomorphic perturbations of Weierstrass Zeta functions and Green's function on tori</i>, Nonlinearity. Vol. 30. No. 8. pp 3241–3254. (2017)</li> <li>9. <i>On Postcritically Minimal Newton Maps</i>, PhD thesis, (2015), available at <a href="https://opus.jacobs-university.de/frontdoor/index/index/docId/209">https://opus.jacobs-university.de/frontdoor/index/index/docId/209</a></li> <li>10. <i>A class of generalized Newton maps with connected Julia set</i>, Proceedings of the Conference “Modern problems of Analysis”, Karshi State University, Uzbekistan, 22-23 April, (2016).</li> <li>11. <i>Approximately finding limit cycle of simplest nonlinear system by He's variational method</i>, Proceedings of the International Conference “Control and Optimization of Dynamical Systems, CODS–2009”</li> <li>12. (joint with O. Akhmedov), <i>Investigation of limit cycles of 3D Brusselator by Discrete-Numerical Tracing Method</i>, Proceedings of International scientific conference “Computational technologies and mathematical modeling” Tashkent, (2009), p.36.</li> <li>13. (joint with N. Dilmuradov), <i>Probabilistic characteristics of solutions of system of linear differential equations with stochastic coefficients</i>, Proceedings of the “Science, development and young population”, pp 47–49, (2007).</li> </ol>												

14. (joint with N. Dilmuradov), *On some properties of periodic functions*, “Nasaf Ziyosi” journal of Karshi State University, issue 1, pp 54–57, (2004).

#### REFERENCES

**Dierk Schleicher**, Professor of Mathematics, Jacobs University Bremen, Germany.  
d.schleicher@jacobs-university.de

**Hiroyuki Inou**, Professor of Mathematics, Kyoto University, Japan.  
inou@math.kyoto-u.ac.jp