

## Dzmitry Dudko

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### Employment

Sept 2019–: Assistant Professor, Stony Brook University, USA  
2016–2019: Postdoctoral Fellow, Jacobs University Bremen, Germany  
Spring 2017, Spring 2018, Spring 2019: Visiting Professor, Stony Brook University, USA  
2010–2016: Assistant (research fellow), G.-A.-Universität zu Göttingen, Germany  
2008–2010: Stipendiary of the Research Training Group 1493, Deutsche Forschungsgemeinschaft, Germany  
2006–2008: Stipendiary of Jacobs University Bremen, Germany

### Education

2012: PhD in mathematics, Jacobs University Bremen, Germany  
Title: *The Decoration Theorem of the Mandelbrot Set and Applications in Holomorphic Dynamics*  
2007: University Diploma, Belarusian State University, Minsk, Belarus

### Research Area

Dynamical Systems; in particular, geometry of the Mandelbrot, renormalization theory, applications of self-similar groups to dynamical systems

### Publications and Preprints

*Local connectivity of the Mandelbrot set at some satellite parameters of bounded type*, with Mikhail Lyubich, available on [arXiv:1808.10425](https://arxiv.org/abs/1808.10425) [[math.DS](#)], 2018

*Algorithmic aspects of branched coverings III/V. Erasing maps, orbispaces, and the Birman exact sequence*, with Laurent Bartholdi, available on [arXiv:1802.03045](https://arxiv.org/abs/1802.03045) [[math.DS](#)], 2018

*Pacman renormalization and self-similarity of the Mandelbrot set near Siegel parameters*, with Mikhail Lyubich and Nikita Selinger, *Journal of the AMS*, 33 (2020), 653–733

*Algorithmic aspects of branched coverings IV/V. Expanding maps*, with Laurent Bartholdi, *Transactions of the AMS*, 370, 7679–7714, 2018

*Algorithmic aspects of branched coverings II/V. Sphere bisets and their decompositions*, with Laurent Bartholdi, *Inventiones Math.*, 223(1):1–100, 2021  
available on [arXiv:1603.04059](https://arxiv.org/abs/1603.04059) [[math.DS](#)], 2016

*Algorithmic aspects of branched coverings I. Van Kampen's Theorem for bisets*, with Laurent Bartholdi, *Groups, Geometry, and Dynamics*, 12 (1), 121–172, 2018

*Algorithmic aspects of branched coverings*, with Laurent Bartholdi, *Ann. Fac. Sci. Toulouse* 26 (5), 1219–1296, 2017

*Core entropy of quadratic polynomials*, with Dierk Schleicher, *Arnold Mathematical Journal*, 25 March 2020

*Matings with laminations*, available on [arXiv:1112.4780v1](https://arxiv.org/abs/1112.4780v1) [[math.DS](#)], 2011

*Homeomorphisms between limbs of the Mandelbrot set*, with Dierk Schleicher, *Proceedings of the AMS*, electr. published on Sept. 23, 2011

*The decoration theorem for Mandelbrot and Multibrot sets, International Mathematics Research Notices*, 13, 3985–4028, 2017

### Teaching

Spring 2021: Ergodic Theory and Smooth Dynamics (MAT 555)  
Fall 2020: Group Theory and Dynamical Systems (MAT 656)  
Spring 2020: Applied Complex Analysis (MAT 342)  
Fall 2019: Geometry for Teachers (MAT 515)  
Spring 2019: Introduction to Linear Algebra (MAT 211)  
Fall 2018: Algebraic Topology, Jacobs University Bremen  
2012–2016: Teaching duties of a research assistant, University of Göttingen

### PhD students

Willie Rush Lim (current)

### Recent Invited Talks (since 2019)

Workshop *Many faces of renormalization*, Simons Center, March 2021  
*4-lecture minicourse* on Renormalization Program, Simons Center, December 2020  
Talk at *Quasiworld seminar*, November, 2020  
Workshop *Algorithms in Complex Dynamics and Mapping Class Groups*, ICERM, Brown University, Nov 2019  
Seminar talk at University of Rhode Island, Oct, 2019  
Conference *Analytic Low Dimensional Dynamics: a celebration of Misha Lyubich's 60th birthday*, May-June, 2019  
Dynamical Systems Special Session, *53rd Spring Topology and Dynamical Systems Conference*, University of Alabama at Birmingham, March, 2019

### Visited places (with at least one contributed talk)

RIMS in Kyoto (Japan), Chinese Academy of Sciences in Beijing (China), HES in Moscow (Russia), Banach conference center in Bedlewo (Poland), Vienna (Austria), University of Geneva (Switzerland), Uppsala University (Sweden), Søminestationen Holbæk, Copenhagen (Denmark), Jacobs University Bremen, University of Goettingen, Oberwolfach Research Institute (Germany), Paris (France), Barcelona (Spain), Fields Institute in Toronto (Canada), Harvard University, University of Chicago, Cornell University, Stony Brook University, Indiana university Bloomington, ICERM of Brown University, University of Alabama, Texas A&M University at College Station (USA)

### Long Term Visits (a month or more)

Fall 2010: Chinese Academy of Sciences, Beijing, semester program on “Complex dynamics and related topics”  
Spring 2012: ICERM, Brown University, Providence, semester program on “Complex and Arithmetic Dynamics”  
Spring 2013: IMS, Stony Brook University, NY

### **Conferences and Programs Organized**

Feb 3 - Mar 23, 2020 and Feb 22 – Mar 19, 2021: Semester Program *Renormalization and Universality in Conformal Geometry, Dynamics, Random Processes, and Field Theory*, Simons Center, Stony Brook University

Mar 5-7, 2021: Workshop *Many faces of renormalization*, Simons Center, Stony Brook University

### **Service**

2019-21 Colloquium Committee, Stony Brook University

- Member of PhD Thesis Committees: Konstantin Bogdanov (2020, Marseille), InSung Park (2021, Bloomington)

### **Grants**

PI for NSF-DMS 2055532, “Complex Dynamics: Renormalization, Geometry, and Algebra”, \$287,991.00, June 1, 2021 – May 31, 2024 (Estimated)

### **Honors and Awards**

- Gold Medal, International Mathematics Olympiad (IMO) 2002 (Glasgow, UK)
- First Prizes on International Mathematics Competition for Undergraduate Students (IMC) 2004–2006