

# Alexey Balitskiy

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## CITIZENSHIP

RUSSIA

## EDUCATION

### MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Sep 2016 – present | PhD

Department: Mathematics

Advisor: Larry Guth

Thesis topic (tentative): Urysohn width

### MOSCOW INSTITUTE OF PHYSICS AND TECHNOLOGY

Sep 2014 – Jun 2016 | Master

Sep 2010 – Jun 2014 | Bachelor

Department: Control and Applied Mathematics

Advisor: Roman Karasev

Thesis: “Shortest closed billiard trajectories in convex bodies in connection with Viterbo’s conjecture”

## LANGUAGES

Russian | mother-tongue

English | fluent

C++/C#/Unity | modest

## HOBBIES

Singing in choir

Playing piano four hands

Gongfu tea

Indie games

Augmented reality

Kintsugi

Metamodern arts & crafts

Linguistics

## RESEARCH

### FIELDS OF INTEREST

Metric, convex, discrete, symplectic geometry

### SELECTED PAPERS AND PREPRINTS

- *Waist of maps measured via Urysohn width* (with A. Berdnikov), in preparation (2020)
- *Local-to-global Urysohn width estimates* (with A. Berdnikov), preprint (2020)
- *A multi-plank generalization of the Bang and Kadets inequalities*, preprint (2020)
- *Flip cycles in plabic graphs* (with J. Wellman), *Selecta Math. (N.S.)* 26.1 (2020): 1-29
- *Equality cases in Viterbo’s conjecture and isoperimetric billiard inequalities*, *Int. Math. Res. Not.* 2020.7 (2020): 1957-1978
- *On the Circle Covering Theorem by A. W. Goodman and R. E. Goodman* (with A. Akopyan and M. Grigorev), *Discrete Comput. Geom.* 59.4 (2017): 1001-1009
- *Shortest closed billiard trajectories in the plane and equality cases in Mahler’s conjecture*, *Geom. Dedicata* 184.1 (2016): 121-134
- *Billiards in convex bodies with acute angles* (with A. Akopyan), *Israel J. Math.* 216.2 (2016): 833-845
- *Elementary approach to closed billiard trajectories in asymmetric normed spaces* (with A. Akopyan, R. Karasev and A. Sharipova), *Proc. Amer. Math. Soc.* 144.10 (2016): 4501-4513
- *Another Ham Sandwich in the Plane* (with A. Garber and R. Karasev), *Ann. Comb.* 19.2 (2015): 235-242

## DISTINCTION

Mar 2015 Laureate of Simons stipend for students in Moscow

Nov 2014 Winner (2<sup>nd</sup> place) on 18<sup>th</sup> All-Russian Möbius Contest

Jul 2014 First Prize at International Mathematics Competition for University Students | Bulgaria

Apr 2010 Winner at All-Russian Mathematical Olympiad

## TEACHING & MENTORING

### SPUR MENTOR | MASSACHUSETTS INSTITUTE OF TECHNOLOGY

2020 E. Bullock and K. Gravel | *Higher Secondary Polytopes for Zonotopal Tilings*

2018 J. Wellman | *Flips in reduced plabic graphs*

### TEACHING ASSISTANT | MASSACHUSETTS INSTITUTE OF TECHNOLOGY

2017–present recitation teacher: Convex optimization

grader: Probability | Linear Algebra | Functional analysis

### TEACHING ASSISTANT | MOSCOW INSTITUTE OF PHYSICS AND TECHNOLOGY

2014–2016 among other things: Topics in algebra (link in Russian) |

Topics in geometric combinatorics (link in Russian)