

Marija Bliznac Trebješanin

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Research Interests

- Diophantine equations— especially Diophantine m-tuples, i.e. sets with the property that the product of any two of its distinct elements is one less than a square.

Education

Department of Mathematics, Faculty of Science, University of Zagreb

PhD, Thesis: *Diophantine D(4)-m-tuples and related problems (in Croatian)* 2014-2018
Doctoral program in Mathematics. Supervisor: Professor dr. sc. Alan Filipin.

Faculty of Science, University of Split

Master's degree 2012–2014
Graduate Studies in Mathematics, Computer Course

Faculty of Science, University of Split

Bachelor's degree 2009–2012
Undergraduate Studies in Mathematics and Computer Science.

Work experience

Faculty of Science, University of Split

Associate professor September 2024-

Faculty of Science, University of Split

Assistant professor April 2019–September 2024

Faculty of Science, University of Split

Research and teaching assistant March 2017–2019

Faculty of Civil Engineering, University of Zagreb

Research assistant February 2015–March 2017

I am PhD student and a member of the Croatian Science Foundation project „Diophantine m-tuples, elliptic curves, Thue and index form equations“.

Faculty of Science, University of Split

Teaching Assistant October 2014.– February 2015.

Publications

- M. Bliznac, A. Filipin, *An upper bound for the number of Diophantine quintuples*, Bull. Aust. Math. Soc., 94(3) (2016), 384–394., doi:10.1017/S0004972716000423
- M. Bliznac Trebješanin, A. Filipin, A. Jurasic, *On the polynomial quadruples with the property $D(-1;1)$* , Tokyo J. Math. 41 (2018), 527-540. doi:10.3836/tjm/1502179250
- M. Bliznac Trebješanin, A. Filipin, *Nonexistence of $D(4)$ -quintuples*, J. Number Theory 194 (2019), 170-217 doi:10.1016/j.jnt.2018.07.013

- M. Bliznac Trebješanin, *Extension of a Diophantine triple with the property D(4)*, Acta Math. Hungar. 163 (2021), 213-246. doi:10.1007/s10474-020-01128-0
- M. Bliznac Trebješanin, *D(4)-triples with two largest elements in common*, Math. Slovaca, vol. 73, no. 2, (2023), 343-352.
- K. N. Adédji, M. Bliznac Trebješanin, A. Filipin, A. Togbé, *On the D(4)-pairs $\{a, ka\}$ with $k \in \{2, 3, 6\}$* , Glas. Mat. Ser. III 58 (2023), 35-57.
- M. Bliznac Trebješanin, S. Bujačić, *Polynomial D(4)-quadruples over Gaussian integers*, Glas. Mat. Ser. III 59 (2024), 1-31.
- K. N. Adédji, M. Bliznac Trebješanin, *On Mixed Concatenations of Pell and Pell-Lucas Numbers which are Pell Numbers*, Mathematica Pannonica 30 (2024), 91-104.
- M. Bliznac Trebješanin, P. Radić, *On extensions of D(4)-triples by adjoining smaller elements*, Publicationes Mathematicae Debrecen, 106/1-2 (2025), 147-168.

Conference Talks and Posters

- *Upper bound on number of D(4)-quintuples*, poster presentation, 6th Croatian Mathematical Congress, Faculty of Science, University of Zagreb (July 2016.)
- *Nonexistence of D(4)-quintuples*, short talk, 30th Journées Arithmétiques, University of Caen, France, (July 2017.)
- *Diophantine D(4)-m-tuples*, poster presentation, 20th International Workshop for Young Mathematicians "Number Theory", Jagiellonian University, Krakow, Poland, (September 2017.)
- *Extensions of a D(4)-triple*, short talk, Representation Theory XVI, Dubrovnik, Croatia, (June 2019.)
- *The regularity of D(4)-m-tuples*, poster presentation, 7th Croatian Mathematical Congress, Split, Croatia, (June 2022)
- *D(4)-triples with two largest elements in common*, Conference on Diophantine m-tuples and related problems III, Zagreb, Croatia, (September 2022)

Other Talks

- *The number of D(4)-quintuples*, Seminar on Number Theory and Algebra, University of Zagreb. (March 2016.)
- *There does not exist a D(4)-quintuple*, Seminar on Number Theory and Algebra, University of Zagreb. (April 2017.)

Conferences and Workshops Attended

- Workshop on Number Theory and Algebra, University of Zagreb, Zagreb, Croatia, 11.2014.
- Galois Theory and Number Theory, University of Konstanz, Konstanz, Germany, 7.2015.
- 6th Croatian Mathematical Congress, University of Zagreb, Zagreb, Croatia 6.2016.
- 30th Journées Arithmétiques, Caen, France, 7.2017.
- Workshop for Young Mathematicians "Number Theory", Jagiellonian University, Krakow, Poland, 9.2017.
- Torsion groups and Galois representations of elliptic curves, University of Zagreb, Zagreb, Croatia 6.2018.
- Representation Theory XVI, Dubrovnik, Croatia, 6.2019.

- 7th Croatian Mathematical Congress, Split, Croatia, 7.2022.
- Conference on Diophantine m-tuples and related problems III, 9.2022.

Scientific Research Experience

2025– “Istraživanja u teorijskoj, primijenjenoj i edukacijskoj matematici (ITPEM)”, Institution-funded project, NextGenerationEU Foundation, Grant no. IP-UNIST-44 (ITPEM), (Principal investigator: Damir Vukičević)

2023– “Number theory and arithmetic geometry”, Croatian Science Fundation project, Grant no. IP-2022-10-5008, (Principal investigator: Filip Najman)

2018–2022 “Diophantine Geometry And Applications”, Croatian Science Fundation project, Grant no. IP-2018-01-1313, (Principal investigator: Matija Kazalicki)

2020–2022 “A contemporary approach to some classical Diophantine problems”, joint austrian-croatian project,

2014–2018 “Diophantine m-tuples, elliptic curves, Thue and index form equations”, Croatian Science Fundation project, Grant no. 6422, (Principal investigator: Andrej Dujella)

2016–2017 project " Classical Problems of Diophant, Fermat and Ritt using New Analytic and Algebraic Techniques"- joint austrian-croatian project

Relevant Skills

Languages: English, Croatian
Computer skills: LaTex, Wolfram Mathematica