

# Marija Bliznac Trebješanin

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## Research Interests

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- 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

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### 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

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### 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

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- 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

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- *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

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- *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

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- 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

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- 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 Foundation project, Grant no. IP-2022-10-5008, (Principal investigator: Filip Najman)
- 2018–2022 "Diophantine Geometry And Applications", Croatian Science Foundation 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 Foundation 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

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