

Ivica Martinjak

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Research Interests

Algebraic Combinatorics, Enumerative Combinatorics, Partition Theory

Abstract

9 CC papers in pure math

1 scientific-popular book

40+ publications

59 lectures given on conferences and institutions

visiting positions: Cambridge, Sorbonae

Experience

University of Dubrovnik

Assistant Professor (2018–)

University of Osijek, Department of Mathematics

Assistant Professor (2016–2018)

Croatian Academy of Science and Art

Postdoctoral Researcher (Spring 2016–2018)

University of Zagreb, Faculty of Science

Teaching Assistant (Spring 2014–2016)

Visiting Positions

Sorbonne University, Henri Poincaré Institute

Visiting Researcher (Spring 2017)

Sorbonne University, Henri Poincaré Institute

Visiting Researcher (Fall 2013)

University of Cambridge, Isaac Newton Institute

Visiting Fellow (Fall 2012)

Other Visitings

University of Ljubljana, Department of Mathematics

Work in research project (2016, 2017)

Work in Research Seminars

Seminar in Combinatorics and Discrete Mathematics, University of Zagreb (2012–)

Seminar in Finite Geometries and Groups, University of Zagreb (2009–2012)

Education

PhD, Discrete Mathematics, University of Zagreb (2006-2010)

MSc, Discrete Mathematics, University of Zagreb (2004-2007)

MS, Physics, University of Zagreb (1990-1995)

Extra courses in mathematics, graduated with distinction.

Advanced Courses Attended

Symmetric Functions and Combinatorics, Atiyah Singer Index Theorem, Cluster Algebras, Homology Theory and Applications

Publications

Research Papers

(s R. Škrekovski) *Lah numbers and Lindström's lemma*, *Comptes Rendus Mathematique*, online first, 2017.

Two Infinite Families of Terminating Binomial Sums, *Period. Math. Hungar.*, 75(2), 2017, 244-254

Two Extensions of the Sury's Identity, *Amer. Math. Monthly*, 123 (9), 2016, p. 919.

(s I. Urbiha) *A New Generalized Cassini Determinant*, *Colloq. Math.* 145 (2), 2016, 209-218.

Algebraic Properties of the Canonical Incidence Matrix of a Biplane, *Discrete Math*, 340/12, 2017, 2807-2812

(s I. Vrsaljko) *On the Polynomial Identities for Recursive Sequences*, *Miskolc Math. Notes*, 18 (1), 2017, 327-336

(s D. Svrtnan) *Some Families of Identities for Integer Partition Function*, *Math. Commun.*, 20(2), 2015, 193-200.

(s I. Urbiha i L. Christea) *Hyperfibonacci Sequences and Polytopic Numbers*, *J. Integer Seq.*, 19/7 (2016), Article 16.7.6, 13pp

A Family of the Zeckendorf Theorem Related Identities, *Int. J. Appl. Math.*, 28/5, 2015, 593-603.

(s D. Svrtnan) *New Identities for the Polarized Partitions and Partitions with d -distant Parts*, *J. Integer Seq.*, 17(11) (2014) article 4.

A Class of Symmetric Association Schemes as Inclusion of Biplanes, *Ars Combin.*, to appear

(s D. Stanić) *A Short Combinatorial Proof of Derangement Identity*, *Elem. Math.*, to appear

Publications in Croatian

(with M. Cvjetović) *Phase transition and cusp catastrophe in Wan der Waals equation*, *Matematičko-fizički list*, 268(4), 2017, 219-225.

Euler's Pentagonal Number Theorem, *Matematičko-fizički list*, 268(4), 2017, 243-249.

On the Euler Theorem on Partitions, *Osječki matematički list*, 16(1), 2016, 1-14.

Generalizations of the Cassini Identity, *Matematičko-fizički list*, 2, 2015, 83-87.

Invited Lectures

Catastrophe Theory and the Zeeman Model, Department of Physics, University of Osijek, (Feb, 2016)

On Some Encounters of Finiteness and Infinity, XI.gimnazija, Zagreb, (Mar, 2015)

Conjectures on Non-transversal Vectors and 2-regular Graphs, University of Split, Department of Mathematics, (Dec, 2013)

L-stable Distributions and Mandelbrot's Invariant, University of Osijek, Department of Mathematics, (Nov, 2012)

Seminars Given

Something new of MacMahon theorem on plane partitions, University of Zagreb, Department of Mathematics (May, 2017)

Complementary Identities for Some Recursive Sequences, University of Zagreb, Department of Mathematics (Mar, 2016)

Advanced Fibonacci Identities, University of Zagreb, Department of Mathematics (May, 2015)

Theorems on Aztec Diamonds and Artic Circle, University of Zagreb, Department of Mathematics (Nov, 2014)

Polarized partitions and partitions of Rogers-Ramanujan type, University of Zagreb, Department of Mathematics (Apr, 2014)

Combinatorics of biplanes and Hussain graphs II, University of Zagreb, Department of Mathematics (Nov, 2013)

Combinatorics of biplanes and Hussain graphs, University of Zagreb, Department of Mathematics (Nov, 2013)

Bijjective proofs of the Jacobi Triple Product Identity, University of Zagreb, Department of Mathematics (Jun, 2013)

Combinatorial interpretation of the Rogers-Ramanujan identities, University of Zagreb, Department of Mathematics (Apr, 2013)

Refinements and extensions of the Euler partition theorem, University of Zagreb, Department of Mathematics (Apr, 2013)

Tactical decompositions of symmetric incidence structures II, University of Zagreb, Department of Mathematics (Dec, 2011)

Tactical decompositions of symmetric incidence structures, University of Zagreb, Department of Mathematics (Dec, 2011)

Polya-Redfield enumeration theorem and some applications, University of Zagreb, Department of Applied Mathematics (May, 2011)

Selected Talks

On the Lindström's lemma and Lah numbers, 1st Croatian-Chinese Workshop on Graph Theory in Nanomaterials, University of Zagreb, Croatia (Jun, 2017)

On the Total Positivity via Aissen-Schoenberg-Whitney Theorem, Croatian Combinatorial Days, University of Zagreb, Croatia (Sep 2016)

Families of Identities for the Integer Partition Function, Croatian Mathematical Congress, University of Zagreb, Croatia (Jun 2016)

Bijjective Proof of Extensions of the Sury Identity, Combinatoiral and Additive Number Theory, University of Graz, Austria, 2016 (Jan 2016)

Identities for the Polarized Partitions and Partitions of Rogers-Ramanujan Type, Algorithmic and Enumerative Combinatorics Summerschool, Johannes Kepler University, Hagenberg, Austria (Jul 2015)

Polarized Partitions and Partitions with d -distant Parts, 5th Polish Combinatorial Conference, Bedlewo, Poland (Sep, 2014)

Families of Identities for Integer Partitions and Partitions with Fixed Length, Elementary and Analytic Number Theory, Hildesheim, Germany (Jul, 2014)

Partitions Arising from Rogers-Ramanujan Identities, Advances in number theory and dynamical systems, conference, Bristol, UK (Apr, 2013)

Strong Density Conjecture for Integral Apollonian Circle Packing, poster presentation, Four Faces of Number Theory, Summer School, Würzburg, Germany (Aug, 2012)

Mini Courses Given

Discrete part of the Book, Department of Mathematics, University of Osijek, Fall 2018.

Convolutions and Catalan numbers, Faculty of Science, University of Zagreb, Fall 2017.

Totally Positive Matrices, Faculty of Science, University of Zagreb, Spring 2017.

Combinatorial Sequences and Recurrence Relations, Faculty of Science, University of Zagreb, Spring 2015.

Mentorship

1 doctoral student (work in progress)

7 first degree thesis (2016-)

1 student research paper for the Rector Award competition (2015)

Skills and Competences

Key research skills

Passionately devoted to research, capable of patient study of a problem.

Detailed knowledge of some areas of mathematics including algebraic combinatorics, partition theory, combinatorial geometry, graph theory, algebraic topology, geometry of numbers, ...

Technical competence

Mathematical tools: GAP, Sage, Office tools: LaTeX, MS Office

Languages

Croatian (native speaker), English (fluent), German (intermediate)

Memberships

Croatian Mathematical Society, Mathematical Association of America, Osječki matematički klub, Hrvatsko društvo za geometriju i grafiku, Hrvatsko katoličko društvo prosvjetnih djelatnika, Matica hrvatska

Awards and Recognitions

Called from the Field Institute, Toronto as a visiting researcher in algebraic combinatorics (2013)

Called from Department of Mathematics, University of Osijek, to prepare curriculum for a new course (2012)

Faculty award, for a publication (co-author of the awarded paper), University of Zagreb (2011)

Travel grants

Johannes Kepler University, University of Hildesheim, University of Bristol, University of Göttingen, University of Würzburg, University of Strathclyde, French National Research Agency, Adam Mickiewicz University.