

# ACADEMIC CV

## PERSONAL DETAILS:

First Name: Giuseppe  
Surname: Mazzuoccolo  
Birth Date: 29/06/1980  
Birth Place: Modena (Italy)  
Home Address: Via Mantova 13, 41125 Modena (Italy)  
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## PRESENT POSITION:

Associate Professor of Geometry (SSD:MAT/03 Geometria). Department of Computer Science of the University of Verona.

## EDUCATION:

October 2003: First degree *summa cum laude* in Mathematics at the University of Modena and Reggio Emilia. Title of the final dissertation "Gruppi di collineazioni e ovali" (advisors: Prof. A.Bonisoli e Prof. G.Rinaldi).

February 2007: PhD in Mathematics at the University of Modena and Reggio Emilia. Title of the final dissertation "Two-factorizations of complete graphs with a prescribed automorphism group" (advisor: Prof.ssa G.Rinaldi).

## CAREER SUMMARY:

From August 2007 to December 2008: Research Grant at the University of Modena and Reggio Emilia on "Decomposition and factorizations of graphs".

From May 2010 to November 2011: Post-doc position in the project "Disegni combinatorici, grafi e loro applicazioni" Prin 2008, Principal Investigator: Prof. Gionfriddo (Università di Catania).

From June 2012 to March 2014: Marie-Curie Fellow in the European Project INDAM-COFUND at the G-SCOP Laboratory in Grenoble (first 18 months) and University of Modena and Reggio Emilia (last 3 months).

December 2013: National Scientific Abilitation as Associate Professor in Algebra and Geometry.

From April 2014 to September 2015: Post-doc Position at University of Modena and Reggio Emilia.

From October 2015 -: Professore Associato presso il Dipartimento di Informatica dell'Università degli Studi di Verona.

From May 2017: Team Member of the PhD program in Mathematics of the Universities of Ferrara, Modena-Reggio Emilia and Parma.

March 2018: National Scientific Abilitation as Full Professor in Algebra and Geometry.

## RESEARCH EXPERIENCES:

June-July 2011 (1 month): Research visitor at ULB in Brussels (Belgium) invited by Dr. Mathieu Bogaerts.

March 2012 (1 week): Research visitor at West Bohemia University in Pilsen (Czech Rep.) invited by Prof. Tomas Kaiser.

November 2014 (2 weeks): Research visitor at Paderborn University (Germany) invited by Prof. Eckhard Steffen.

August 2018 (1 weeks): Research visitor at Ghent University (Belgium) invited by Dr. Jan Goedgebeur.

## PUBLICATIONS:

1. S.Bonvicini, G.Mazzuoccolo "A new description of Perfectly one-factorable cubic graphs" Atti Semin. Mat. Fis. Univ. Modena Reggio Emilia, 54 (2006), pp. 167-173.
2. A. Bonisoli, M. Buratti, G. Mazzuoccolo "Doubly transitive 2-factorizations", Journal of Combinatorial Designs Vol.15, Issue 2 (2007), pp. 120-132.
3. G. Mazzuoccolo, G. Rinaldi "k-pyramidal one-factorizations", Graphs and Combinatorics Vol.23, Issue 3 (2007), pp. 315-326.
4. G. Mazzuoccolo "Primitive 2-factorizations of the complete graph" Discrete Mathematics 308 (2008), pp. 175-179.
5. G. Mazzuoccolo "On 2-factorizations whose automorphism group acts doubly transitively on the factors" Discrete Mathematics 308 (2008), pp. 931-939.

6. G.Mazzuoccolo " **Perfect one-factorizations in line-graphs and planar graphs**" Australasian Journal of Combinatorics 41 (2008), pp. 227-233.
7. S.Bonvicini, G.Mazzuoccolo, G.Rinaldi " **On 2-factorizations of the complete graph: from the k-pyramidal to the universal property**" Journal of Combinatorial Designs Vol.17, Issue 3 (2009), pp.211-228.
8. G.Mazzuoccolo, B.Ruini " **On automorphic chromatic index of Generalized Petersen graphs**"
9. AKCE Journal of Graphs and Combinatorics Vol. 6, Issue 3 (2009), pp.429-437
10. S.Kurz, G.Mazzuoccolo " **On matchsticks graphs with given girth**" Geombinatorics Vol.19, Issue 4 (2009), pp. 156-175.
11. C.Fiori, G.Mazzuoccolo, B.Ruini " **On the automorphic chromatic index of a graph**" Graphs and Combinatorics Vol.26 Issue 5 (2010), pp. 685-694.
12. G.Mazzuoccolo, G.Rinaldi " **Sharply transitive one-factorizations of complete multipartite graphs**" Electronic Journal of Combinatorics Vol.17, Issue 1 (2010) R77.
13. S.Bonvicini, G.Mazzuoccolo " **Abelian one-factorizations of infinite complete graphs**" European Journal of Combinatorics 31 (2010) pp. 1847-1852.
14. G.Mazzuoccolo " **NP-completeness of automorphic colorings**" Discussiones Mathematicae Graph Theory 30 (2010) 705-710.
15. C.Fiori, G.Mazzuoccolo, B.Ruini " **Automorphic chromatic index of infinite classes of snarks**" Results in Mathematics 58 (2010) 241-254.
16. G.Mazzuoccolo, M.Young " **Graphs of arbitrary excessive class**" Discrete Mathematics 311 (2011) 32-37.
17. S.Bonvicini, G.Mazzuoccolo " **Perfect one-factorizations in Generalized Petersen graphs**" Ars Combinatoria 99 (2011) 33-43.
18. G.Mazzuoccolo " **The equivalence of two conjectures of Berge and Fulkerson**" Journal of Graph Theory 68 (2011) 125-128.
19. M.Bogaerts, G.Mazzuoccolo " **Cyclic and dihedral 1-factorizations of multipartite graphs**" Electronic Journal of Combinatorics 18 (2011) R179.
20. M. Bogaerts, G.Mazzuoccolo, G.Rinaldi " **Totally symmetric Kekulé structures in Fullerene Graphs with Ten or More Symmetries**" MATCH Commun. Math. Comput. Chem. 69 (2013) 677-705.
21. S.Bonvicini, G.Mazzuoccolo " **Covering cubic graphs with matchings of large size**" The Australasian Journal of Combinatorics 56 (2013) 245-256.
22. G.Mazzuoccolo " **An upper bound for the excessive index of an r-graph**" Journal of Graph Theory 73 (2013) 377-385.
23. G.Mazzuoccolo " **Covering a cubic graph with perfect matchings**" Discrete Mathematics 313 (2013) 2292-2296.
24. G.Mazzuoccolo, B.Ruini " **Upper bounds for the automorphic chromatic index of a graph**" Graphs and Combinatorics: Volume 30, 4 (2014), 963-975.
25. G.Mazzuoccolo " **On the excessive [m]-index of a tree**" Discrete Applied Mathematics 162 (2014) 264-270.
26. L.Esperet, G.Mazzuoccolo " **On Cubic Bridgeless Graphs Whose Edge-Set Cannot be Covered by Four Perfect Matchings**" Journal of Graph Theory 77 (2014) 144-157.
27. L.Esperet, G.Mazzuoccolo " **On the maximum fraction of edges covered by t perfect matchings in a cubic bridgeless graph**" Discrete Mathematics 338 (2015) 1509-1514.
28. D.Cariolaro, G.Mazzuoccolo " **Excessive [l,m]-factorizations**" Discrete Mathematics 338 (2015) 1917-1927.
29. L.Esperet, G.Mazzuoccolo, M.Tarsi " **The structure of graphs with Circular flow number 5 or more, and the complexity of their recognition problem**" Journal of Combinatorics 7(2) (2016), 453-479.
30. S.Dantas, M.H. De Figueiredo, G.Mazzuoccolo, M.Preissman, V. Dos Santos, D.Sasaki " **On the equitable total chromatic number of cubic graphs**" Discrete Applied Mathematics 209 (2016), 84-91.
31. S.Bonvicini, G.Mazzuoccolo " **Edge-colorings of 4-regular graphs with the minimum number of palettes**" Graphs and Combinatorics 32(4) (2016), 1293-1311.
32. S.Dantas, M.H. De Figueiredo, G.Mazzuoccolo, M.Preissman, V. Dos Santos, D.Sasaki " **On the total coloring of generalized Petersen graphs**" Discrete Mathematics 339 (2016), 1471-1475.
33. M.Abreu, T.Kaiser, D.Labbate, G.Mazzuoccolo " **Tree-like snarks**" The Electronic Journal of Combinatorics 23 (2016), P3.54.
34. G.Mazzuoccolo, E.Steffen " **Nowhere-zero 5-flows on cubic graphs with oddness 4**" Journal of Graph Theory 85 (2017), 363-371.
35. L.Esperet, G.Mazzuoccolo, M.Tarsi " **Flows and bisections in cubic graphs**" Journal of Graph Theory 86 (2017), 149-158.
36. L.Jin, G.Mazzuoccolo, E.Steffen " **Cores, joins and the Fano-flow conjectures**" Discussiones Mathematicae Graph Theory 38 (2018), 165-175.
37. M.Abreu, J. Goedgebeur, D.Labbate, G. Mazzuoccolo " **A note on 2-bisections of claw-free cubic graphs**" Discrete Applied Mathematics
38. M.A.Fiol, G.Mazzuoccolo, E.Steffen " **On measures of edge-uncolorability of cubic graphs: A brief survey and some new results**" Electronic Journal of Combinatorics 25 (2018) P 4.45
39. G. Mazzuoccolo, G.Rinaldi " **Rainbow spanning tree decompositions in complete graphs colored by cyclic 1-factorizations**" Discrete Mathematics 342 (2019) 1006-1016.
40. M.Avesani, A.Bonisoli, G. Mazzuoccolo " **A family of multigraphs with large palette index**" Ars Mathematica Contemporanea 17 (2019) 115-124.
41. M.Abreu, J. Goedgebeur, D.Labbate, G. Mazzuoccolo " **Colourings of cubic graphs inducing isomorphic monochromatic subgraphs**" to appear in Journal of Graph Theory.
42. G.Mazzuoccolo, V.Mkrtchyan " **Normal colorings of cubic graphs**" to appear in Journal of Graph Theory.
43. G. Mazzuoccolo, J.P. Zerafa " **An equivalent formulation of the Fan-Raspud Conjecture and related problems**" to appear in Ars Mathematica Contemporanea
44. L. Ferrarini, G. Mazzuoccolo, V. Mkrtchyan " **Normal 5-edge-colorings of a family of Loupekhine snarks**" to appear in AKCE International Journal of Graphs and Combinatorics
45. J. Goedgebeur, D.Mattiolo, G. Mazzuoccolo " **Computational results and new bounds for the circular flow number of snarks**" Discrete Mathematics 343 (2020)
46. E. Macajova, G. Mazzuoccolo " **Reduction of the Berge-Fulkerson conjecture to cyclically 5-edge-connected snarks**" to appear in Proceedings of the American Mathematical Society

47. - J. Goedgebeur, D.Mattiolo, G. Mazzuocolo "A unified approach to construct snarks with circular flow number 5" to appear in Journal of Graph Theory.

#### INVITED TALKS:

- "On the excessive index of a graph" VUB (Brussels, Belgium, June 2011).
- "Covering graphs with matchings of fixed size" Invited Speaker, workshop IWONT 2011 (Brussels, Belgium, 2011)
- "Covering a 3-graph with perfect matchings" West Bohemian University (Pilsen, March 2012)
- "How many perfect matchings are necessary to cover the edge-set of a graph?" Istitute Polytechnique de Grenoble, July 2012.
- "On bridgeless cubic graphs whose edge-set cannot be covered by four perfect matchings" École normale supérieure de Lyon (Lyon, France, September 2013).
- "Flows and Bisections in cubic graphs" PACE of Paderborn (Paderborn, Germany, November 2014).
- "On cubic graphs admitting a bisection with small monochromatic components" invited speaker, SIWAG 2016 (Polignano (BA), Italy, September 2016)
- "Construction of cubic graphs with circular flow number 5" invited speaker, Ghent Graph Theory Workshop 2017 (Ghent, Belgium, August 2017)
- "Normal edge-colorings of cubic graphs" Ghent University (Ghent, Belgium, August 2018)
- "Reduction of the Berge-Fulkerson Conjecture to cyclically 5-edge-connected snarks" invited speaker, GGTW2019 (Ghent, Belgium, August 2019)
- "Normal edge-colourings of cubic graphs" October 2020 Online seminar in the series organized by Prof. Martin Skoviera Comenius University di Bratislava.
- "How many lines of the Fano plane do we need to color a cubic graph?" March 2021 Online seminar in the series "Galois geometries and their applications" of the University of Campania.

#### OTHER RESEARCH EXPERIENCES:

- Member of the Organizing Committee of the Workshop "A Graph Theory Workshop" - 1 July 2016 at the Dipartimento di Scienze Fisiche, Informatiche e Matematiche of the University of Modena and Reggio Emilia.
- Advisor of the PhD student Dr. Davide Mattiolo at the University of Modena and Reggio Emilia from 1 November 2017.
- Advisor of the PhD student Dr. Jean Paul Zerafa at the University of Modena and Reggio Emilia from 1 November 2017.
- Advisor of Dott. Vahan Mkrtchyan for a postdoc position at the University of Verona from 1 November 2017.
- Member of the Organizing Committee of the international conference "Combinatorics 2018" - Arco di Trento (TN) 3-9 June 2018 .
- Member of the Scientific Committee of "Discrete Mathematics Seminars" - Brescia, Modena, Verona from September 2018.
- Member of the Scientific Committee of the international conference "LAGOS 2019" Belo Horizonte (Brasil) 2-7 June 2019.
- Member of the Organizing Committee of the international conference "Combinatorics 2020" - June 2021

#### REFeree ACTIVITY:

Referee for a book of the series «Lectures notes in Mathematics» Springer.

Referee for the following journals: Discrete Mathematics, Journal of Graph Theory, Journal of Applied Mathematics and Computing, Journal of Combinatorial Designs, Electronic Journal of Combinatorics, Graphs and Combinatorics, Bulletin of the Australian Mathematical Society, Bulletin of the Iranian Mathematical Society, Journal of Combinatorial Mathematics and Combinatorial Computing, Australasian Journal of Combinatorics, Discrete Mathematics and Theoretical Computer Science, Quaderni di Matematica della Seconda Università di Napoli e Informations Processing Letters.

**Date**

01/04/2021

**Signature**