

Born in Rome, Italy, on June 20th, 1969.

Researcher in Geometry (MAT/03) since November 1st, 2010, at Sapienza Università. Department: S.B.A.I. (Scienze di Base e Applicate per l'Ingegneria).

Education

January 30th, 1992, Italian “Laurea” in Mathematics, Università La Sapienza, Rome, Italy. Topic of the thesis: Cobordism theory (Algebraic and Differential Topology).

February 20th, 2003, PhD in Mathematics, Università La Sapienza. Title of the thesis: *Two examples of hypergraph edge-coloring, and their connections with other topics in Combinatorics*.

Postdoctoral grants

November 2003 – October 2005 and July 2006 – June 2009, Postdoctoral grants in Geometry (Combinatorics), department: Metodi e Modelli Matematici per le Scienze Applicate (Me.Mo.Mat.), Università La Sapienza. Main research topic: block designs, decomposition of graphs, difference families, graph labellings.

Teaching

November 1993 – March 1999, teacher of Mathematics in public High Schools (Sassari, Viterbo).

2000 – 2010, “Tutor” in Calculus, Geometry, and Algebra, Università La Sapienza.

2001 – 2003, “Professore a contratto” in Mathematical Logic, Università La Sapienza.

2005 – 2017, Courses of Geometry and Linear Algebra in Latina (Università La Sapienza).

2017 – Courses of Geometry and Linear Algebra in Rome (Università La Sapienza).

2017 – 2018, PhD course (first part): *Graceful labellings and edge colourings of graphs*, within the PhD programme “Mathematics for Engineering”, SBAI department.

Schools and other Courses

1992 – 1993, course in Mathematical Teaching (“Didattica della matematica e della matematica applicata”), Università La Sapienza.

1994 – 1995, course in Teaching Technologies (“Tecnologie per l'insegnamento”), Università Roma Tre.

1997 – 1998, course in Science Teaching (“Didattica delle scienze”), Università Roma Tre.

9 – 21 August, 1999, ESSLLI99, European school of Logic, Language and Information, Utrecht University (The Netherlands).

September 27th – October 1st, 1999, Summer school in Logic, Cesena (Italy).

21 – 24 March, 2000, SUNLAG2000, Workshop in Logic, Algebra, Geometry, Caserta (Italy), Seconda Università di Napoli.

August 28th – September 2nd, 2017, Summer School “Graph limits, groups and stochastic processes”, MTA Renyi Institute, Budapest.

Organisation of Events

11 – 14 June, 2003, *22ème Journées sur les Arithmétiques Faibles*, Napoli: website construction and general collaboration.

Since March 2011, Seminars at the SBAI department (“Seminari di Geometria”): contacts, data storing, announcements, support.

1 – 2 February, 2018, *Discretaly: a workshop in Discrete Mathematics*, Rome: member of the organising committee.

Ongoing: organisation of the workshop *Mathematical Springtime in Rome*, member of the organising committee.

Recent seminars

- GeoSym 2015, Veszprém, Hungary, 29 June – 3 July, 2015, *A rephrasing of edge colouring by local charts and orientability*.
- Combinatorics 2016, Maratea, 29 May – 4 June, 2016, *Graceful polynomials and their vanishing*.
- Hypergraphs, Graphs and Designs – HyGraDe 2017, Sant’Alessio Siculo (Messina, Italy), 20 - 24 June, 2017 *Graceful polynomials of small degree*.
- January 9th, 2018, Department: Scienze Fisiche, Informatiche e Matematiche, Università di Modena e Reggio Emilia, *Some algebraic approaches to graceful labellings*.
- Workshop on Algebraic Graph Theory and Complex Networks 2018, Naples, 13 – 14 September, 2018, *On the graceful polynomials of a graph*.
- January 11th, 2019, Department: Scienze Fisiche, Informatiche e Matematiche, Università di Modena e Reggio Emilia, *Graceful polynomials: an introduction and a glance at the graceful tree conjecture*.
- March 19th, 2019, Department S.B.A.I., Università Sapienza, *Graceful polynomials: an introduction and a glance at the graceful tree conjecture*.

Other conferences

- *Trends in Graph Theory and Combinatorics*, April 4 – 5, 2013, Department of Mathematics, Politecnico di Milano.
- *Trends in Graph Theory and Combinatorics*, January 26 – 27, 2017, Department of Mathematics, Politecnico di Milano (only the 26th).
- Combinatorics 2018, Arco (Trento), 3 – 9 June, 2018.

Recent publications

- *Necessary conditions on graceful labels: a study case on trees and other examples*, Utilitas Math. **89**, 2012, pp. 275-287.
- *A combinatorial analysis of zero-divisor graphs on certain polynomial rings*, Comm. Algebra, **41**, 2013, pp. 2040-2047.
- *The story of Graceful Collages (Breaking the Harmony, for a Better One)*, in: *Recent Results in Designs and Graphs. A Tribute to Lucia Gionfriddo*, Quaderni di Matematica **28**, 2013, pp. 439-454.
- *A new zero-divisor graph contradicting Beck’s conjecture, and the classification for a family of polynomial quotients*, Graphs Comb. **31**, 2015, pp. 2413-2423.
- *An analogy between edge colourings and differentiable manifolds, with a new perspective on 3-critical graphs*, Graphs Comb. **31**, 2015, pp. 2425-2435.
- *On the graceful polynomials of a graph*, Austral. J. Math. **73**, 2019, pp. 261-273.
- *Searching for Hyperbolic Polynomials with Span Less than 4* (with S. Capparelli and A. Del Fra), Exp. Math., online, January 2020.
- *A Möbius-type gluing technique for obtaining edge-critical graphs* (with S. Bonvicini), Ars Math. Contemp. **19**, 2020, pp.209-229.
- *Some partition and analytical identities arising from the Alladi, Andrews, Gordon bijection* (with S. Capparelli, A. Del Fra, and P. Mercuri), The Ramanujan Journal, 2020.

Textbooks

Itinerario di geometria e algebra lineare, ed. CISU, 2010.

Referee activity

for many international journals on Combinatorics.

Reviewer

for MathSciNet.

Recent grants (membership)

- PRIN2012 (National project) 2012XZE22K_007, from 08/03/2014 to 08/03/2017.
- Sapienza Università Project (“Progetto di Ateneo”): *Decomposizione, proprietà estremali di grafi e combinatoria di polinomi ortogonali*, C26A14FF4X, 2014.
- Progetto di Ateneo: *Colorazione di grafi e combinatoria di polinomi ortogonali*, C26A15S4RH, 2015.

Other

Supervisor for “Laurea triennale” Thesis: January 2013, Michela Andreetta, *Colorazione di grafi: aspetti generali ed esempi di applicazioni*.

Supervisor for “Laurea triennale” Thesis: December 2020, Gabriele Grapow, *Alcuni aspetti applicativi della teoria dei grafi in relazione a temi di ingegneria energetica*.

Member of *Giunta di Dipartimento* (SBAI, Sapienza, Rome) and of *Giunta di Facoltà* (Ingegneria Civile e Industriale, Sapienza, Rome) since 2017.