Francesco Strazzanti

Personal data

Name	Francesco
Surname	Strazzanti
Date of birth	March 29, 1988
Place of birth	Enna, Italy
Citizenship	Italian
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Academic positions

1/03/2023 - present   Research fellow (Ricercatore di tipo A) at the Department of Mathematics of the University of Genoa, Italy.

20/08/2022 - 28/02/2023 Postdoc position at the Department of Mathematics "Giuseppe Peano" of the University of Turin, Italy.

01/05/2021 - 19/08/2022 Postdoc position at the Department of Mathematics "Giuseppe Peano" of the University of Turin, Italy.

01/05/2020 - 30/04/2021 Postdoc position at the Department of Mathematics of the University of Bologna, Italy.

01/04/2019 - 31/03/2020 Postdoc position funded by INdAM at the Department of Mathematics and Computer Science of the University of Catania, Italy.

19/09/2018 - 18/03/2019 Grant for research activity abroad by INdAM ay 2018-2019 at the Institute of Mathematics of the University of Barcelona (IMUB), Spain.

23/05/2018 - 22/08/2018 Research fellow at the Department of Mathematics and Computer Science of the University of Catania, Italy.

19/01/2018 - 18/04/2018 Grant for research activity abroad by INdAM ay 2017-2018 at the Institute of Mathematics of the University of Barcelona (IMUB), Spain.

02/01/2017 - 31/12/2017 Postdoc position at the Department of Algebra and Institute of Mathematics of the University of Seville (IMUS), Spain.

Education

Ph.D in Mathematics, University of Pisa, Italy (2012 - 2016).
Thesis: *A family of quotients of the Rees algebra and rigidity properties of local cohomology modules.*
Advisor: Enrico Sbarra.

Laurea Magistrale in Mathematics (Master), University of Catania, Italy (2010 - 2012).
Thesis: *Almost Gorenstein rings* (in italian).
Advisor: Marco D'Anna.
Mark: 110/110 and honors.

Laurea in Mathematics (Bachelor), University of Catania, Italy (2007 - 2010).
Thesis: *Seminormal rings and subintegral extensions* (in italian).
Advisor: Marco D'Anna.
Mark: 110/110 and honors.

Publications and Preprints

1. M. D'Anna, F. Strazzanti, *The numerical duplication of a numerical semigroup*, Semigroup Forum **87** (2013), no. 1, 149-160.

2. V. Barucci, M. D'Anna, F. Strazzanti, *A family of quotients of the Rees Algebra*, Communications in Algebra **43** (2015), no. 1, 130–142.

3. F. Strazzanti, *One half of almost symmetric numerical semigroups*, Semigroup Forum **91** (2015), no. 2, 463–475.

4. F. Strazzanti, *Minimal genus of a multiple and Frobenius number of a quotient of a numerical semigroup*, International Journal of Algebra and Computation **25** (2015), no. 6, 1043–1053.

5. V. Barucci, M. D'Anna, F. Strazzanti, *Families of Gorenstein and almost Gorenstein rings*, Arkiv för Matematik **54** (2016), no. 2, 321–338.

6. E. Sbarra, F. Strazzanti, *A rigidity property of local cohomology modules*, Proceedings of the American Mathematical Society **145** (2017), 4099–4110.

7. A. Oneto, F. Strazzanti, G. Tamone, *One-dimensional Gorenstein local rings with decreasing Hilbert function*, Journal of Algebra **489** (2017), 91–114.

8. D. Bolognini, A. Macchia, F. Strazzanti, *Binomial edge ideals of bipartite graphs*, European Journal of Combinatorics **70** (2018), 1–25.

9. M. D'Anna, F. Strazzanti, *New algebraic properties of quadratic quotients of the Rees algebra*, Journal of Algebra and its Applications **18** (2019), no. 3, 1950047.

10. V. Barucci, F. Strazzanti, *Dilatations of numerical semigroups*, Semigroup Forum **98** (2019), no. 2, 251–260.

11. M. D'Anna, R. Jafari, F. Strazzanti, *Tangent cones of monomial curves obtained by numerical duplication*, Collectanea Mathematica **70** (2019), no. 3, 461–477.

12. F. Strazzanti, K.-i. Watanabe, *Almost symmetric numerical semigroups with odd generators* in Numerical Semigroups - IMNS 2018, Springer INdAM Series **40** (2020), 335–349.

13. A. Moscariello, F. Strazzanti, *Nearly Gorenstein vs almost Gorenstein affine monomial curves*, Mediterranean Journal of Mathematics **18** (2021), article number: 127.

14. A. Caminata, F. Strazzanti, *Nearly Gorenstein cyclic quotient singularities*, Beiträge zur Algebra und Geometrie / Contributions to Algebra and Geometry **62** (2021), 857–870.

15. M. D'Anna, F. Strazzanti, *Almost canonical ideals and GAS numerical semigroups*, Communications in Algebra **49** (2021), no. 8, 3534–3551.

16. M. D'Anna, R. Jafari, F. Strazzanti, *Simplicial affine semigroups with monomial minimal reduction ideals*, Mediterranean Journal of Mathematics **19** (2022), article number: 84.

17. F. Strazzanti, S. Zarzuela Armengou, *The Hilbert-Kunz function of some quadratic quotients of the Rees algebra*, Proceedings of the American Mathematical Society **150** (2022), 1493–1503.

18. D. Bolognini, A. Macchia, F. Strazzanti, *Cohen-Macaulay binomial edge ideals and accessible graphs*, Journal of Algebraic Combinatorics **55** (2022), 1139–1170.

19. D. Bolognini, A. Macchia, F. Strazzanti, V. Welker, *Powers of monomial ideals with characteristic-dependent Betti numbers*, Research in the Mathematical Sciences **9** (2022), article number: 26.

20. G. Caviglia, A. De Stefani, E. Sbarra, F. Strazzanti, *On the notion of sequentially Cohen-Macaulay modules*, Research in the Mathematical Sciences **9** (2022), article number 40.

21. M. D'Anna, F. Strazzanti, *When is $\mathfrak{m} : \mathfrak{m}$ an almost Gorenstein ring?*, Revista Matemática Complutense **36** (2023), 73–90.

22. D. Bolognini, A. Macchia, G. Rinaldo, F. Strazzanti, *Cohen-Macaulay binomial edge ideals of small graphs*, arXiv:2212.09181.

Invited talks

Workshop on Commutative Algebra and Algebraic Geometry, Catania, Italy, September 7-9, 2022.
Title: *When is $\mathfrak{m} : \mathfrak{m}$ an almost Gorenstein ring?*

University of Messina, Italy, August 1, 2022.
Title: *A conjecture on binomial edge ideals.*

Commutative Algebra, D-Modules and Singularities intertwined, La Cristalera, Miraflores de la Sierra (Madrid), Spain, June 21, 2022.
Title: *The Hilbert-Kunz function of some quadratic quotients of the Rees algebra.*

INdAM Workshop: International Meeting on Numerical Semigroups - Roma 2022, Rome, Italy, June 15, 2022.
Title: *Almost canonical ideals and GAS numerical semigroups.*

Department of Mathematics and Computer Science, University of Catania, Italy, May 30, 2022.
Title: *Cohen-Macaulay binomial edge ideals.*

Department of Mathematics, University of Genoa, Italy, March 23, 2022.
Title: *Cohen-Macaulay binomial edge ideals.*

Department of Industrial Engineering and Mathematical Sciences, Università Politecnica delle Marche, Ancona, Italy, November 16, 2021.
Title: *Cohen-Macaulay binomial edge ideals.*

Department of Mathematics "Giuseppe Peano", University of Turin, Italy, June 16, 2021 (virtual lecture).
Title: *Cohen-Macaulay binomial edge ideals.*

1st MIM short research course on *Affine Semigroup Rings*, Kharazmi University, Tehran, Iran, December 5, 2020 (virtual lecture).
Title: *Almost Gorenstein and nearly Gorenstein numerical semigroup rings.*

Workshop for Young Researchers in Mathematics, Bucharest, Romania, June 4, 2019.
Title: *A family of quadratic quotients of the Rees algebra.*

Frobenius Action in Commutative Algebra: Recent Developments (FACARD), Barcelona, Spain, January 17, 2019.
Title: *A family of quadratic quotients of the Rees algebra.*

INdAM Meeting: International meeting on numerical semigroups, Cortona, Italy, September 5, 2018.
Title: *Tangent cones of monomial curves obtained by numerical duplication.*

Department of Mathematics and Computer Science, University of Catania, Italy, May 18, 2018.
Title: *Binomial edge ideals of bipartite graphs.*

Department of Mathematics and Computer Sciences, University of Barcelona, Spain, March 2, 2018.
Title: *Binomial edge ideals of bipartite graphs.*

Institute of Mathematics of the University of Seville (IMUS), Spain, November 8, 2017.
Title: Numerical semigroups.

Department of Mathematics, University of Pisa, Italy, September 11, 2017.
Title: *Binomial edge ideals.*

Meeting of the Catalan, Spanish, Swedish Math Societies, Umeå, Sweden, June 15, 2017.
Special session: *Numerical semigroups and applications.*
Title: *Numerical duplication and its associated graded ring.*

Workshop for young researchers in mathematics, Bucharest, Romania, May 19, 2017.
Title: *Binomial edge ideals of bipartite graphs.*

Workshop on Algebra and Geometry 2017 (Thematic week on Semigroups and Applications), Badajoz, Spain, May 8, 2017.
Title: *Numerical duplication and its associated graded ring.*

Department of Algebra, Complutense University of Madrid, Spain, April 20, 2017.
Title: *Numerical semigroups and applications.*

Department of Algebra and Computer Sciences, University of Barcelona, Spain, April 6, 2017.
Title: *One-dimensional Gorenstein local rings with decreasing Hilbert function.*

International meeting on numerical semigroups with applications, Levico Terme, Italy, July 8, 2016.
Title: *Symmetric numerical semigroups with decreasing Hilbert function.*

Institute for Mathematics, University of Osnabrück, Germany, June 30, 2016.
Title: *Rigidity properties of local cohomology modules.*

Welcome Workshop for the special spring semester 2016, Genoa, Italy, February 1, 2016.
Title: *One-dimensional Gorenstein local rings with decreasing Hilbert function.*

Department of Mathematics, Royal Institute of Technology (KTH), Stockholm, Sweden, January 27, 2016.
Title: *Rigidity properties of Betti numbers and local cohomology modules.*

Department of Mathematics and Computer Science, University of Catania, Italy, April 1, 2015.
Title: *Idealization and amalgamated duplication: an unified approach and applications.*

INdAM Meeting: International meeting on numerical semigroups, Cortona, Italy, September 9, 2014.
Title: *Numerical duplication of a numerical semigroup.*

Contributed talks

5th *Catania Combinatorial Conference HyGraDe 2022*, Catania, Italy, July 6, 2022.
Title: *Cut-point sets of a finite simple graph.*

The 18th (Virtual) Seminar on *Commutative Algebra and related topics*, January 10, 2022, organized by IPM, Tehran, Iran.
Title: *Almost canonical ideals and gAGL rings.*

Organization of scientific meetings

(Upcoming) *Commutative algebra TOwards applications*, Torino, Italy, May 22-24, 2023.
Webpage: https://sites.google.com/view/commalgintorino/home

Other participations in conferences and schools (selected)

Einstein Workshop on Polytopes and Algebraic Geometry, Berlin, Germany, December 2-4, 2019.

Algebraic Combinatorics in Genova, Genoa, Italy, September 11-13, 2019.

Recent developments in Commutative Algebra, Levico Terme, Italy, July 1-5, 2019.

School (and workshop) on syzygies, Trento, Italy, September 4-9, 2017.

Meeting on Commutative Algebra, Genoa, Italy, October 22-24, 2015.

Combinatorial and Experimental Methods in Commutative Algebra and Related Fields, Osnabrück, Germany, October 7-10, 2015.

Effective Methods in Algebraic Geometry (MEGA), Trento, Italy, June 15-19, 2015.

Joint meeting AMS/EMS/SPM, Porto, Portugal, June 10-13, 2015.

Minimal free resolutions, Betti numbers, and combinatorics, Edinburgh, United Kingdom, June 1-5, 2015.

HTCA 2015 - Homology: Theoretical and Computational Aspects, Genoa, Italy, February 9-13, 2015.

Summer school: Combinatorial structures in geometry, Osnabrück, Germany, October 6-9, 2014.

Meeting On Combinatorial Commutative Algebra 2014, Levico Terme, Italy, September 10-12, 2014.

Pragmatic 2014, Local cohomology and syzygies of affine algebras, Catania, Italy, June 23 - July 11, 2014.

Summer course of mathematics organized by Scuola Matematica Interuniversitaria in Perugia, Italy, July 31 - September 2, 2011. Courses attended: Algebra and Algebraic geometry.

International school in computational commutative algebra and algebraic geometry, Messina, Italy, October 18-23, 2010.

Summer course of mathematics organized by Scuola Matematica Interuniversitaria in Perugia, Italy, August 1- September 3, 2010. Courses attended: Algebra and Algebraic geometry.

Awards

Italian habilitation to be a "Professore di II fascia" (Associate Professor) in Geometry and Algebra (valid from 18/09/2018 to 18/09/2028).

Projects' membership

Local project funded by the University of Catania: *Proprietà locali e globali di anelli e di varietà algebriche* - PIACERI 2020-2022.

Former projects' membership

Plan Estatal 2013-2016 Excelencia - Proyectos I+D: Geometría Aritmética, D-Módulos y Singularidades. MTM2016-75027-P.
Webpage: http://investigacion.us.es/sisius/proyecto/27699.

Local project funded by the University of Catania: *Proprietà algebriche locali e globali di anelli associati a curve e ipersuperfici* - PTR 2016-2018.

Plan Estatal 2013-2016 Excelencia - Proyectos I+D: *Geometría Algebraica y Geometría Aritmética: Métodos Diferenciales, Singularidades, Cohomología y Curvas Elípticas*. MTM2013-46231-P.
Webpage: https://investigacion.us.es/sisius/proyecto/24322

MIUR-DAAD Joint Mobility Program 2016: *Combinatorial and Computational Methods in Commutative Algebra*, project nr. 57267452.

Prin 2010-11: *Geometria delle varietà algebriche*.

Research in pairs with Raheleh Jafari and Marco D'Anna in the framework of the *ICTP-INdAM Research in Pairs Programme*, Catania (Italy), October 1-22, 2019.

Research Stays

Free University of Berlin, Germany, October, 13-23, 2022.

University of Pisa, Italy, September 9-17, 2017.

University of Barcelona, Spain, April 2-8, 2017.

University of Osnabrück, Germany, June 27 2016- July 2, 2016.

Royal Institute of Technology (KTH), Stockholm, Sweden, January 25-29, 2016.

Philipps University of Marburg, Germany, October 12-19, 2015.

University of Duisburg-Essen, Germany, October 2-19, 2014.

Teaching - PhD level

PhD course entitled *Monomial ideals in commutative algebra*, Phd programme in *Pure and Applied Mathematics* jointly established by Politecnico di Torino, University of Turin, CIAFM, and INdAM (Italy), ay 2022/2023. The course consisted of 20 hours: 10 taught by me and 10 by Cristina Bertone.

PhD course entitled *Monomial ideals in commutative algebra*, Phd programme in *Pure and Applied Mathematics* jointly established by Politecnico di Torino, University of Turin, CIAFM, and INdAM (Italy), ay 2021/2022. The course consisted of 20 hours: 10 taught by me and 10 by Cristina Bertone.

PhD course entitled *Numerical semigroups and commutative algebra* (24 hours), Phd programme in Mathematics and Computational Science, Consortium of Universities of Palermo, Catania, and Messina (Italy), ay 2019/2020.

Open course entitled *Numerical semigroups and commutative algebra* addressed to graduate students and professors, Department of Algebra, University of Seville (Spain), 15 lessons of 90 minutes, year 2017.

Teaching - Other

(Ongoing) Part of the couse entitled *Elementi di Matematica 2* (30 hours), University of Genoa (Italy), ay 2022/2023.

Tutor activity for the course *Algebra 1* (50 hours), Laurea in Mathematics (Bachelor), University of Turin (Italy), ay 2022/2023.

Tutor activity for the course *Algebra 1* (40 hours), Laurea in Mathematics (Bachelor), University of Turin (Italy), ay 2021/2022.

Tutor activity for the course *Algebra 2* (30 hours), Laurea in Mathematics (Bachelor), University of Turin (Italy), ay 2021/2022.

Tutor activity for the course *Algebra 1* (30 hours), Laurea in Mathematics (Bachelor), University of Turin (Italy), ay 2021/2022.

Tutor activity for the course *Algebra 1* (30 hours), Laurea in Mathematics (Bachelor), University of Bologna (Italy), ay 2020/2021.

Pre-course in Mathematics, Department of Civil and Industrial Engineering of the University of Pisa (Italy), 30 hours, ay 2016/2017.

Supplementary teaching, Department of Mathematics of the University of Pisa (Italy), 10 hours, ay 2015/2016.

Supplementary teaching, Laurea in Mathematics (Bachelor), University of Pisa (Italy), 20 hours, ay 2014/2015.

Course for OFA (Obblighi Formativi Aggiuntivi), Laurea in Mathematics (Bachelor), University of Pisa (Italy), 20 hours, ay 2013/2014.

Tutor in Laurea in Mathematics (Bachelor), University of Catania (Italy), 80 hours, ay 2011/2012.

Other

Computer skills: use of mathematical software like Macaulay 2, Cocoa, Gap, and Singular.

Language skills: Italian (mother tongue), English (fluent), Spanish (Basic).

Referee for the following research journals: Journal of Pure and Applied Algebra, Journal of Algebraic Combinatorics, Ricerche di Matematica, Vietnam Journal of Mathematics, Communications in Algebra, Journal of Algebra and its Applications, Semigroup Forum, Filomat, Mathematics, Journal of Mathematics, Demonstratio Mathematica, Czechoslovak Mathematical Journal, Annali dell'Università di Ferrara, Le Matematiche, and Springer INdAM Series.

Reviewer for ZbMATH.

Member of the Barcelona's node of the spanish network *Monoids and applications*.
Webpage: http://www.ugr.es/ semigrupos/MyA/nodos-en.html

Member of the italian *National Group for Algebraic and Geometric Structures, and their Applications (GNSAGA - INDAM)*.
Webpage: http://www.altamatematica.it/gnsaga