

Giovanni Staglianò

Assistant professor with tenure track

Curriculum vitae

Personal information

Birth Eberbach (Germany), January 19, 1981
Nationality Italian
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Academic positions

10/2021–present **Assistant professor with tenure track**, in Italian: "Ricercatore RTDb", University of Catania, Italy
02/2019–09/2021 **Temporary research fellow**, University of Catania, Italy
10/2017–09/2018 **Temporary research fellow**, Polytechnic University of Marche, Ancona, Italy
09/2013–08/2016 **CAPES postdoctoral fellow**, Fluminense Federal University, Brazil

Scientific habilitations

05/2021–present **Habilitation as Associate Professor** in Mathematics (scientific area: Algebra and Geometry) since 24 May 2021.

Education

11/2007–12/2012 **PhD in Mathematics** (XXIII Cycle), University of Catania, Italy, achieved February 22, 2013
Supervisor: Francesco Russo
09/2005–07/2007 **Master Degree (Laurea Specialistica) in Mathematics**, University of Calabria, Italy, achieved July 24, 2007 with grade 110/110 *cum laude*
Supervisor of the final thesis: Paolo A. Oliverio
09/2002–07/2005 **Bachelor Degree (Laurea Triennale) in Mathematics**, University of Calabria, Italy, achieved July 26, 2005 with grade 110/110 *cum laude*
Supervisor of the final thesis: Paolo A. Oliverio

Journal publications

- [23] G. Staglianò, *Explicit computations with cubic fourfolds, Gushel–Mukai fourfolds, and their associated K3 surfaces*, **Experimental Mathematics** (2023), doi 10.1080/10586458.2023.2184882.
- [22] F. Russo and G. Staglianò, *Trisecant flops, their associated K3 surfaces and the rationality of some Fano fourfolds*, **Journal of the European Mathematical Society** (2022), doi 10.4171/JEMS/1248.
- [21] M. Hoff and G. Staglianò. *Explicit constructions of K3 surfaces and unirational Noether–Lefschetz divisors*, **Journal of Algebra** 611 (2022), 630–650, doi: 10.1016/j.jalgebra.2022.08.005.

- [20] H. Awada, M. Bolognesi, and G. Staglianò. *Birational geometry of some universal families of n -pointed Fano fourfolds*, **European Journal of Mathematics**, 8 (2022), 130–146, doi: 10.1007/s40879-022-00545-5.
- [19] G. Staglianò, *On some families of Gushel-Mukai fourfolds*, **Algebra & Number Theory** 16 (2022), no. 8, 1905–1918, doi: 10.2140/ant.2022.16.1905.
- [18] F. Russo and G. Staglianò, *Explicit Rationality of Some Special Fano Fourfolds*. In: *Rationality of Varieties*. Progress in Mathematics, 342 (2021) Birkhauser, Cham, doi: 10.1007/978-3-030-75421-1_12.
- [17] G. Staglianò, *Computations with rational maps between multi-projective varieties*, **Journal of Software for Algebra and Geometry** 11 (2021), 143–153, doi: 10.2140/jsag.2021.11.143.
- [16] G. Staglianò, *Some new rational Gushel fourfolds*, **Mediterranean Journal of Mathematics** 18 (2021), no. 182, doi: 10.1007/s00009-021-01797-3.
- [15] G. Staglianò, *A package for computations with sparse resultants*, **Journal of Software for Algebra and Geometry** 11 (2021), 61–69, doi: 10.2140/jsag.2021.11.61.
- [14] M. C. Brambilla and G. Staglianò, *Algebraic boundaries among typical ranks for real binary forms of arbitrary degree*, **Foundations of Computational Mathematics** 21 (2020), 1003–1022, doi: 10.1007/s10208-020-09474-9.
- [13] M. Hoff and G. Staglianò, *New examples of rational Gushel-Mukai fourfolds*, **Mathematische Zeitschrift** 296 (2020), 1585–1591, doi: 10.1007/s00209-020-02498-5.
- [12] G. Staglianò, *Special cubic birational transformations of projective spaces*, **Collectanea Mathematica** 71 (2020), no. 1, 123–150, doi:10.1007/s13348-019-00251-8.
- [11] R. Gondim, F. Russo, and G. Staglianò, *Hypersurfaces with vanishing hessian via Dual Cayley Trick*, **Journal of Pure and Applied Algebra** 224 (2019), no. 3, 1215–1240, doi:10.1016/j.jpaa.2019.07.015.
- [10] F. Russo and G. Staglianò, *Congruences of 5-secant conics and the rationality of some admissible cubic fourfolds*, **Duke Mathematical Journal** 168 (2019), no. 5, 849–865, doi:10.1215/00127094-2018-0053.
- [9] M. C. Brambilla and G. Staglianò, *On the algebraic boundaries among typical ranks for real binary forms*, **Linear Algebra and its Applications** 557 (2018), 403–418, doi:10.1016/j.laa.2018.07.036.
- [8] M. Bolognesi, F. Russo, and G. Staglianò, *Some loci of rational cubic fourfolds*, **Mathematische Annalen** 373 (2019), no. 1, 165–190, doi:10.1007/s00208-018-1707-7.
- [7] G. Staglianò, *A Macaulay2 package for computations with rational maps*, **Journal of Software for Algebra and Geometry** 8 (2018), no. 1, 61–70, doi:10.2140/jsag.2018.8.61.
- [6] G. Staglianò, *A package for computations with classical resultants*, **Journal of Software for Algebra and Geometry** 8 (2018), no. 1, 21–30, doi:10.2140/jsag.2018.8.21.
- [5] A. Massarenti, M. Mella, and G. Staglianò, *Effective identifiability criteria for tensors and polynomials*, **Journal of Symbolic Computation** 87 (2018), 227 – 237, doi:10.1016/j.jsc.2017.11.006.

- [4] G. Staglianò, *Special cubic Cremona transformations of \mathbb{P}^6 and \mathbb{P}^7* , **Advances in Geometry** 19 (2018), no. 2, 191–204, doi:10.1515/advgeom-2018-0001.
- [3] G. Staglianò, *Examples of special quadratic birational transformations into complete intersections of quadrics*, **Journal of Symbolic Computation** 74 (2016), 635–649, doi:doi:10.1016/j.jsc.2015.11.004.
- [2] G. Staglianò, *On special quadratic birational transformations whose base locus has dimension at most three*, **Rendiconti Lincei - Matematica e Applicazioni** 24 (2013), no. 3, 409–436, doi:10.4171/rlm/659.
- [1] G. Staglianò, *On special quadratic birational transformations of a projective space into a hypersurface*, **Rendiconti del Circolo Matematico di Palermo** 61 (2012), no. 3, 403–429, doi:10.1007/s12215-012-0099-x.

Preprints

F. Russo and G. Staglianò. On the complete intersections of three quadrics in \mathbb{P}^7 . In preparation.

Software packages included with Macaulay2

(Those marked with * have been certified and published in JSAG)

Cremona*, rational and birational maps between projective varieties. Available at <https://faculty.math.illinois.edu/Macaulay2/doc/Macaulay2/share/doc/Macaulay2/Cremona/html/index.html>.

Resultants*, multivariate resultants, discriminants, and Chow forms. Available at <https://faculty.math.illinois.edu/Macaulay2/doc/Macaulay2/share/doc/Macaulay2/Resultants/html/index.html>.

SparseResultants*, sparse resultants, sparse discriminants, and hyperdeterminants. Available at <https://faculty.math.illinois.edu/Macaulay2/doc/Macaulay2/share/doc/Macaulay2/SparseResultants/html/index.html>.

MultiprojectiveVarieties*, multi-projective varieties and multi-rational maps. Available at <https://faculty.math.illinois.edu/Macaulay2/doc/Macaulay2/share/doc/Macaulay2/MultiprojectiveVarieties/html/index.html>.

SpecialFanoFourfolds, special cubic fourfolds and special Gushel-Mukai fourfolds. Available at <https://faculty.math.illinois.edu/Macaulay2/doc/Macaulay2/share/doc/Macaulay2/SpecialFanoFourfolds/html/index.html>.

CoincidentRootLoci, coincident root loci and real ranks of binary forms. Available at <https://faculty.math.illinois.edu/Macaulay2/doc/Macaulay2/share/doc/Macaulay2/CoincidentRootLoci/html/index.html>.

K3Surfaces, (with M. Hoff) explicit constructions of K3 surfaces. Available at <https://faculty.math.illinois.edu/Macaulay2/doc/Macaulay2/share/doc/Macaulay2/K3Surfaces/html/index.html>.

Invited Talks

- 09/2022 Participation to the *Incontro INdAM – “The Strong and Weak Lefschetz Properties”*, Cortona.
- 09/2022 *Explicit unirationality of some moduli spaces of K3 surfaces*, *Workshop on Commutative Algebra and Algebraic Geometry*, Università degli Studi di Catania.
- 03/2022 Talk for the group of *Géométrie Complexe*, Toulouse Mathematics Institute, Toulouse.

- 12/2021 *Explicit unirationality of some moduli spaces of K3 surfaces*, Workshop: *Geometry and Arithmetic of Varieties with Trivial Canonical Bundle*, Oslo.
- 05/2020 *Kodaira dimension of moduli spaces of special Gushel-Mukai fourfolds and rational examples*, University of Milan (online seminar).
- 01/2020 *Kuznetsov's conjecture and rationality of cubic fourfolds*, Workshop: *Cremona transformations and the Sarkisov program*, University of Ferrara.
- 11/2019 *Kuznetsov's conjecture and rationality of cubic fourfolds*, Workshop: *Algebraic Geometry in Calabria*, University of Calabria, Cosenza.
- 11/2019 *Kuznetsov's Conjecture and rationality of cubic fourfolds*, Universität des Saarlandes, Saarbrücken.
- 09/2018 *On the algebraic boundaries among typical ranks for real binary forms*, UMI-SIMAI-PTM - Joint Meeting Wrocław.
- 06/2018 *Congruenze di coniche 5-secanti e razionalità di alcune ipersuperfici cubiche di \mathbb{P}^5* , Workshop: *Giornate di Geometria Algebrica ed Argomenti Correlati XIV*, University of Genoa.

Further participation in workshops and conferences

- 09/2021 *Riposte Armonie – Algebraic Geometry in Cetraro*, Cetraro (CS).
- 01/2020 *Cremona transformations and the Sarkisov program*, University of Ferrara.
- 11/2019 *Algebraic Geometry in Calabria*, University of Calabria, Cosenza.
- 09/2019 Macaulay2 Workshop 2019, Universität des Saarlandes, Saarbrücken.
- 09/2018 UMI-SIMAI-PTM - Joint Meeting Wrocław.
- 06/2018 Giornate di Geometria Algebrica ed Argomenti Correlati XIV, University of Genoa.
- 09/2017 Geometria Algebrica e Tensori 2017–2018, Polytechnic University of Marche, Ancona.
- 06/2015 II ELGA - II Latin American School of Algebraic Geometry and Applications, Cabo Frio, Brazil.
- 03/2014 Colóquio de Geometria e Aritmética, Universidade Federal Fluminense, Niterói, Brazil.
- 02/2014 LEGAL 2014 - Liberdade em Geometria Algébrica, Teresópolis, Brazil.
- 09/2010 PRAGMATIC 2010, University of Catania.
- 09/2009 PRAGMATIC 2009, University of Catania.

Stays in other universities

- 04–09/11/2019 Universität des Saarlandes (Saarbrücken), research work in collaboration with Dr. Michael Hoff.
- 03–09/03/2019 Polytechnic University of Marche (Ancona), research work in collaboration with Prof. Maria Chiara Brambilla.

Recent teaching experience

- 10/2021–present *Algebraic Geometry* (Master's Degree in Mathematics), University of Catania.
- 03/2021–present *Linear Algebra and Geometry* (Degree Courses in Computer Science and Computer Engineering), University of Catania.
- 10/2019–present *Mathematics* (Degree Course in Geological Sciences), University of Catania.
- 03/2019–06/2019 Teaching Assistant of *Geometry 2* (Degree Course in Mathematics), University of Catania.

10/2017–09/2018 *Linear Algebra and Geometry – M/Z* (Computer Science and Automation Engineering), Polytechnic University of Marche.

Students

- Damiana Gallo, *Dualità, Discriminanti e Iperdeterminanti*, Master Degree in Mathematics (A.A. 2022/2023).

Mathematical interests

- Birational geometry of projective varieties.
- Rationality problem for cubic fourfolds and Gushel-Mukai fourfolds.
- Computational algebraic geometry.
- Tensor ranks and real algebraic geometry.

I authorise the use of my personal data in compliance with Legislative Decree 196/03
Catania, October 1, 2023

Giovanni Staglianò

