MICHELE GRAFFEO

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RESEARCH INTERESTS

• Algebraic Geometry • Birational Geometry • Resolution of singularities • Hilbert schemes & Moduli spaces of sheaves • Representation theory • Toric Geometry • Enumerative Geometry • Minimal Model Program • Derived Category

ACADEMIC POSITIONS

Postdoctoral Fellow at *Politecnico di Milano* - Milano (Italy)   2/2023-present
Mentor: P. Lella
Visiting Fellow at *SISSA* - Trieste (Italy)   1/2023-present
Project: " *Nested Hilbert schemes and GIT stability conditions* "
Mentor: U. Bruzzo

EDUCATION

PhD in Geometry and Mathematical Physics (cum Laude) at *SISSA* - Trieste (Italy)   10/2018-11/2022
Thesis: " *Zero-dimensional sheaves, group actions and blowups* "
Supervisors: U. Bruzzo & A. T. Ricolfi
Master of Science in Mathematics (cum Laude) at *University of Pisa* - Pisa (Italy)   9/2015-9/2018
Thesis: " *Koszul cohomology and Hilbert schemes of points* "
Supervisors: M. Franciosi
Bachelor in Mathematics at *University of Pisa* - Pisa (Italy)   9/2010-5/2015
Thesis: "*Il teorema degli zeri in algebre analitiche reali e complesse* "
Supervisors: F. Acquistapace
Scientific High School diploma at *Liceo Scientifico "Enrico Fermi"* - Sciacca (Italy)   9/2003-8/2008

TO APPEAR AND PUBLISHED

- *"On the Behrend function and the blowup of some fat points"*, with A. T. RICOLFI.
  Advances in Mathematics, Volume 415, 15 February 2023, 108896   2023

PREPRINTS

- *"Growth and integrability of some birational maps in dimension three"*, with Giorgio Gubbiotti   2023
- *"Moduli spaces of $\mathbb{Z}/k\mathbb{Z}$-constellations over $\mathbb{A}^2$"*.   2022

TEACHING

T.A. for *Mathematical Analysis* at *University of Trieste, School of Engineering* - Trieste (Italy)   9/2022-1/2023
T.A. for *Mathematical Analysis* at *University of Trieste, School of Engineering* - Trieste (Italy)   9/2021-2/2022
T.A. for *Mathematical Analysis* at *University of Trieste, School of Engineering* - Trieste (Italy)   9/2020-2/2021
T.A. for *Mathematical Analysis* at *University of Trieste, School of Engineering* - Trieste (Italy)   9/2019-2/2020
T.A. for *Mathematical Analysis* at *University of Pisa, School of Engineering* - Pisa (Italy)   9/2017-2/2018
T.A. for *Linear Algebra* at *University of Pisa, School of Engineering* - Pisa (Italy)   9/2017-2/2018
T.A. for *Linear Algebra* at *University of Pisa, School of Engineering* - Pisa (Italy)   9/2016-2/2017

HELD SEMINARS, POSTER SESSIONS & WRITTEN ESSAYS

- *"On the dynamics of some birational maps of $\mathbb{P}^3$"*   *Politecnico di Milano*
- *"Behrend number and blowups of planar fat points"*   *Politecnico di Milano*
- *"Dynamics of some birational maps of the projective 3-space"*   *University of Genova*
- *"Dynamics of some birational maps of $\mathbb{P}^3$"*   *SISSA*
- *"GIT stability conditions on the space of G-Constellations"*   *University of Milan*
- *"Minimal resolutions of A_k singularities as moduli spaces of $\mathbb{Z}/(k+1)\mathbb{Z}$-constellations"*   *Federal University of Paraíba*
- Poster session at the Workshop *"Integrable Probability, Classical and Quantum Integrability"*   *SISSA*
- *"Moduli spaces of $\mathbb{Z}/k\mathbb{Z}$-constellations over the affine plane"*   *University of Utrecht*
- *"On the Behrend function and the blowup of some fat points"*   *University of Bologna*
- *"How to get your hands dirty with canonical singularities"*   *SISSA*
- *"Crepant resolutions of symplectic quotient singularities as moduli spaces of constellations"*   *SISSA*
- *"Introduction to K3 surfaces"*   *SISSA*
- *"Moduli of representation of quivers and first examples of scattering diagrams"*   *SISSA/ICTP*

- *"Intersection theory and tautological ring of moduli space of curves"*   *SISSA*
- *"Blowups: some properties and funny examples"*   *SISSA*
- *"Towards the Kodaira vanishing theorem"*   *SISSA*
- *"Playing with quotient singularities"*   *SISSA*
- *" The real nullstellensatz"*   *University of Pisa*
- *"Normalization of complex spaces"*   *University of Pisa*
- Fifty-pages extended essay on *"Markov's Theorem"* based on in-class lectures and individual research

ATTENDED SCHOOLS, WORKSHOPS & ADVANCED COURSES

- *"Commutative Algebra TOwards Applications" (Torino)*   Spring 2023
- *"Mini-school: Real and complex birational geometry " at University of Milan (Milano)*   Spring 2023
- *"Refined invariants in Moduli Theory" (Trieste)*   Spring 2023
- *"5th Christmas Workshop on Moduli Spaces and Integrable Systems" (Genova)*   Winter 2022
- *"AGATES-Deformation theory workshop" at IMPAN (Warsaw)*   Winter 2022
- *"Young Researchers Meeting in Algebra and Geometry 2022" conference at SISSA (Trieste)*   Fall 2022
- *"Recent Advances in Classical Algebraic Geometry" conference at Jagiellonian University (Krakow)*   Summer 2022
- *"Mini-workshop on Quiver Varieties and Related Topics" workshop at University of Oxford*   Summer 2022
- *"New Perspectives on Hyperkähler Manifolds" workshop at Levico Terme*   Spring 2022
- *"Moduli Spaces and Stability Conditions" school & workshop at Levico Terme*   Spring 2022
- *"Derived Functors" PhD course by U. Bruzzo*   Fall 2020
- *"Hilbert schemes, Mckay correspondence and singularities" winter school at Univ. Paris Diderot (Paris)*   Winter 2019
- *"Localisation in Enumerative Geometry" PhD course by A. T. Ricolfi*   Fall 2019
- *"Differentiable Orbifolds" PhD course by B. Fantechi*   Fall 2019
- *"Foliations in algebraic geometry" summer school at Istitut Fourier (Grenoble)*   Summer 2019
- *"Gauge Theory" PhD course by A. Tikhomirov*   Spring 2019
- *"Advanced topics in algebraic geometry" PhD course by E. Arbarello*   Fall 2018
- *"Algebraic surfaces: the cubic surface, the Cayley cubic, lines on smooth surfaces" PhD course by F. Catanese*   Fall 2018
- *"Cones of divisors and positivity" PhD course by L. Lombardi*   Fall 2018
- *"Integrable systems from moduli spaces of stable curves" PhD course by P. Rossi*   Fall 2018

LANGUAGES & IT SKILLS

- Italian: native; English: fluent; French: basic.
- Macaulay2, GAP, Latex, Unity, Windows OS, Android OS, Microsoft application, Office suite (ECDL) (Advanced), Ubuntu, C programming language, html.

REFEREES

Ugo Bruzzo	Andrea Tobia Ricolfi
SISSA	SISSA
bruzzo@sissa.it	aricolfi@sissa.it

ORGANISATION OF EVENTS & OTHER TASKS

- Co-organiser of the Algebraic Geometry seminar in SISSA   2021-22
- Co-organiser of the Algebraic Geometry seminar in SISSA/IGAP   2020-21
- Co-organiser of the Algebraic Geometry seminar joint between SISSA and ICTP   2019-20
- Co-organiser of the Algebraic Geometry seminar in SISSA   2018-19
- Museum guide of a Mathematics exhibition named *"Mathematics in ancient Greece"*   Pisa (Italy) 2018
- Developed strong analytical, problem-solving and time management skills, throughout my PhD studies at SISSA.
- Proven excellent communication, coaching and leadership skills, when working as a teaching assistant.
- Learnt how to be a team-player and how to get the best from joint outcome when working in a group.
- Learnt how to work and deliver results in high-pressure situations, such as studying and working at the same time.
- Volunteer work with both the needy and the elderly.
- Interests and hobbies: music, politics and chess.