

# MICHELE GRAFFEO

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Home Page: <https://graffeomichele.github.io>

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## EDUCATION

<b>PhD in Geometry and Mathematical Physics</b> at <i>SISSA - Trieste (Italy)</i>	10/2018-present
Thesis: " <i>Hilbert schemes, constellations and resolutions of singularities</i> "	
Supervisors: U. Bruzzo & A. T. Ricolfi	
<b>Master of Science in Mathematics</b> at <i>University of Pisa - Pisa (Italy)</i>	9/2015-9/2018
Thesis: " <i>Koszul cohomology and Hilbert schemes of points</i> "	
Supervisors: M. Franciosi	
<b>Bachelor in Mathematics</b> at <i>University of Pisa - Pisa (Italy)</i>	9/2010-5/2015
Thesis: " <i>Il teorema degli zeri in algebre analitiche reali e complesse</i> "	
Supervisors: F. Acquistapace	
<b>Scientific High School diploma</b> at <i>Liceo Scientifico "Enrico Fermi" - Sciacca (Italy)</i>	9/2003-8/2008

## 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

## PREPRINTS

- "Moduli spaces of  $\mathbb{Z}/k\mathbb{Z}$ -constellations over  $\mathbb{A}^2$ ". [2022](#)
- "On the Behrend function and the blowup of some fat points", with A. T. RICOLFI. [2022](#)

## TEACHING

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

## HELD SEMINARS & POSTER SESSIONS & WRITTEN ESSAYS

- "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*
- "Crepan 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

- "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.
- Latex, Windows OS, Android OS, Microsoft application, Office suite (ECDL) (Advanced). Ubuntu, C programming language, html, Macaulay2 (Good command)

## REFEREES

**Ugo Bruzzo**

SISSA

bruzzo@sissa.it

**Andrea Tobia Ricolfi**

SISSA

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.