
Academic Positions

- 09/2022- **Tenure track Assistant Professor (RtdB)**, Università di Modena e Reggio Emilia
2020 - 2022 **Postdoctoral Fellow**, Università di Trento, 24 months
2018 - 2020 **Postdoctoral Fellow**, Université de Genève, 24 months

Education

- 2018 **PhD in Mathematics**, Università di Bologna, Supervisor: Professor Luca Migliorini
Thesis title: "Two applications of the decomposition theorem to moduli spaces"
2014 **MSc in Pure Mathematics**, Università di Bologna
Final mark: 110/110 cum laude
2012 **BSc in Pure Mathematics**, Università di Bologna
Final mark: 110/110 cum laude

Research Interests

Support theorem and perverse sheaves.

Non abelian Hodge theory. Study of the $P=W$ conjecture and its compact analogues on IHS varieties

Irreducible holomorphic symplectic (IHS) varieties. Study of their cohomological properties and their Hodge theory.

Complex algebraic geometry

Publications

Published Articles

- 11) **$P=W$ phenomena in algebraic and enumerative geometry**, to appear in *Bollettino UMI*
- 10) **O'Grady tenfolds as moduli spaces of sheaves**, with Franco Giovenzana and Annalisa Grossi, *Forum of Mathematics, Sigma*, 12 (2024) e60
DOI: 10.1017/fms.2024.46
- 9) **On generalized nefness and bigness in adjunction theory**, with Claudio Fontanari, *Vietnam Journal of Mathematics*, 52 (1) (2023), pp. 255 - 263
DOI: 10.1007/s10013-022-00604-0
- 8) **$P=W$ conjectures for character varieties with symplectic resolution**, with Mirko Mauri, *Journal de l'École polytechnique-Mathématiques* 9 (2022), pp.853-905
DOI: 10.5802/jep.196
- 7) **On intersection cohomology and Lagrangian fibrations for irreducible symplectic varieties**, with Junliang Shen and Qizheng Yin, *Trans. Amer. Math. Soc.* (2022), pp. 1-15
DOI: 10.1090/tran/8592
- 6) **Betti Numbers of Brill-Noether varieties on a general curve**, with Claudio Fontanari, *Atti Accad. Naz. Lincei Rend. Lincei Mat. Appl.* (2021), pp.1-9
DOI: 10.4171/RLM/964
- 5) **On the splitting principle of Beniamino Segre**, with Claudio Fontanari, *Ann. Mat. Pura Appl.* (2021), pp. 1-6
DOI: 10.1007/s10231-021-01171-w

- 4) **Intersection cohomology of the moduli space of Higgs bundles on a curve of genus 2**, *Journal of the Institute of Mathematics of Jussieu*, (2021) pp. 1-50
DOI: 10.1017/S1474748021000347
 - 3) **A support theorem for nested Hilbert schemes of planar curves**, *Manuscripta Math.*, 164 (2021), pp. 467–488
DOI: 10.1007/s00229-020-01189-z
 - 2) **Intersection cohomology of the moduli space of Higgs bundles on a genus 2 curve**, *Oberwolfach Reports* Volume 16, Issue 2, (2019), pp. 1357–1417
DOI: 10.4171/OWR
 - 1) **Two applications of the decomposition theorem to moduli spaces**, PhD Thesis, Bologna, 2018
DOI: 10.6092/unibo/amsdottorato/8681
- [Preprints](#)
- 12) **Symmetric weights in finite element exterior calculus**, with Ludovico Bruni Bruno and Enrico Zampa, submitted

(Long) Research stays

- 05/2021 **Visiting Researcher**, *Université de Genève*, Genève, 2 weeks
 02/2020 **Visiting Researcher**, *Max Planck Institute for Mathematics*, Bonn, 2 weeks
 10/2016 **Visiting Researcher**, *Imperial College*, London, 2 weeks

Fundings obtained

- 2021 INdAM grant for participating in the workshop *Enumerative Geometry, Physics and Representation Theory*, €800
 2019 INdAM grant for participating in the workshop *ISAAC 2019*, €400
 2017 GEAR grant, €750
 2016 INdAM grant for participating in the workshop *Arithmetic aspects of moduli spaces*, €600
 2016 INdAM grant for participating in the workshop *Higgs bundles and spectral data*, €1000
 2015 INdAM grant for participating in the workshop *VBAC 2015. Fourier-Mukai: 34 years on*, €400
 2015 INdAM grant for participating in the workshop *Aspects of Algebraic Geometry*, €1500

Honours, Awards and Studentships

- 2014 3years PhD Fellowship, University of Bologna
 2012 Collegio Superiore Fellowship (award of excellence for outstanding students during the MSc)
 2009 INDAM prize for students in Mathematics
 2009 MIUR (Ministry of Public Instruction and Research) Award of Excellence for Scientific High School degree

Given and upcoming talks

[As invited speaker at conferences](#)

- 2024 *The $P=W$ Conjecture in Non Abelian Hodge Theory*, Oxford
 2023 *Vector bundles and combinatorial algebraic geometry*, Frankfurt
 2023 *Young researchers in Algebra and Geometry*, Roma
 2023 *Categorified enumerative invariants*, Lausanne
 2023 *VBAC*, Essen
 2023 *Refined invariants in moduli theory*, Trieste
 2022 *DMV annual meeting*, Berlin

- 2022 *Gauged Maps, Vortices and Their Moduli*, Les Diablerets
- 2022 *Geometric Structures Re-United*, Chicago
- 2021 *Seminari di Natale*, Milano
- 2021 *VBAC conference*, online
- 2021 *Giornate di Geometria Algebrica e argomenti correlati XV*, online
- 2020 *DMV annual meeting*, online
- 2020 *ISAAC 2019*, Aveiro
- 2020 *Geometry and Physics of Higgs Bundles*, Oberwolfach
- 2019 *Workshop on Fano varieties and IHS manifolds*, Rimini
- 2018 *Current trends and spectral data for Higgs bundles*, Oxford
- 2018 *JAVA*, Tatihou
- 2017 *Higgs bundles and Hitchin systems*, Chicago

Invited talks

- 2024 *Algebra and Geometry seminar*, Politecnico di Milano
- 2023 *Algebra and Geometry seminar*, University of Bologna
- 2023 *TRINO seminar*, University of Trieste
- 2022 *EDGE seminar*, University of Edinburgh
- 2022 *Geometry Seminar*, Göethe Universität Frankfurt
- 2022 *Geometry Seminar*, University of Torino
- 2022 *Geometry Seminar*, Center for Quantum Mathematics
- 2022 *Geometry Seminar*, Universidad Complutense de Madrid,online
- 2021 *Algebra and Geometry Seminar*, University of Pisa
- 2021 *Geometry Seminar*, TU Chemnitz, online
- 2021 *Geometry Seminar*, IST Lisboa, online
- 2021 *Geometry Seminar*, UC Riverside, online
- 2020 *Algebraic Geometry Seminar*, EPFL, online
- 2020 *Algebraic geometry seminar*, University of Strasbourg
- 2020 *Algebraic Geometry seminar*, University of Trento
- 2020 *Algebraic geometry seminar*, Max Planck Institute for Mathematics
- 2019 *MAGIC seminar*, Imperial College London
- 2017 *Geometry seminar*, University of Heidelberg

Service

Referee for Journal of the European Mathematical Society, Journal of Algebraic Geometry, Advances in Mathematics, Journal of the Institute of Mathematics of Jussieu, Quarterly Journal of Mathematics, Proceedings of the Cambridge Philosophical Society, Advances in Geometry.

Seminar and Conferences Organized

- 2020- **Organizer of *Geometry Seminar at Unittn***, together with Elisa Postinghel and Luis Solá Conde, University of Trento
- 2018/2019 **Organizer of *Fable Géométriques***, together with Grigory Mikhalkin, University of Geneva
- 2018-2020 **Organizer of *Séminaire de la Tortue***, together with Andras Szenes, University of Geneva
- 2017 **Organizer of the conference *Workshop on IHS manifolds and stability conditions***, together with Giovanni Mongardi and Annalisa Grossi
- 2014-2018 **Organizer of *Ba.D. mood seminar***

2014 **Organizer of the conference *Perspectives in physical mathematics*, together with Marco Trozzo and Lorenzo Ruffoni (Bologna)**

Membership in Research groups, Grants and Projects

2020- Member of the project PRIN 2017 “Advances in moduli theory and birational Classification”
2018/2020 Member of the SNF projects 17599 and 156645
2018/2020 Member of SWISSMAP
2014- Member of INdAM GNSAGA

Languages

Italian Native
English Proficient
French Intermediate

Computer skills

Advanced Computer algebra software as Mathematica, Macauley2, Matlab
Miscellaneous LaTeX, C++ Windows, Office

Bologna, 17/02/2024