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## 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

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## 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

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## 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**

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## 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

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## (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

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## 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

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## 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

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## 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

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## 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.

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## 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)**

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## 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

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## Languages

Italian Native  
English Proficient  
French Intermediate

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## Computer skills

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

Bologna, 07/07/2024