Curriculum Vitae

Federico Caucci
Orcid: 000-003-0018-069X

Current Position

Oct/2023 - : Postdoc, University of Ferrara.

Employment

Apr/2021 - Mar/2023: Postdoc, University of Milan,
member of the Erc Consolidator Grant 2017 "Stability conditions, moduli spaces and enhancements", PI: Prof. Paolo Stellari.

Apr/2020 - Mar/2021: Postdoc in memory of Paolo de Bartolomeis, University of Florence.

Education

Nov/2016 - Jan/2020: Sapienza University of Rome, Ph.D. program in Mathematics,
with Scholarship.
Classification: with honors. Graduation date: 20/01/2020.
Thesis: "The basepoint-freeness threshold, derived invariants of irregular varieties, and stability of syzygy bundles".
Advisor: Prof. Giuseppe Pareschi.

Nov/2013 - Mar/2016: University of Pisa, Master Degree in Mathematics.
Grade: 110/110 cum laude. Graduation date: 11/03/2016.
Thesis: "The generic vanishing theorem of Green and Lazarsfeld".
Advisor: Prof. Rita Pardini.

Sep/2010 - Oct/2013: University of Rome Tor Vergata, Bachelor Degree in Mathematics.
Grade: 107/110. Graduation date: 23/10/2013.

Research Interests

Algebraic Geometry, especially abelian and irregular varieties, derived categories of projective varieties, Fourier-Mukai transforms.

Publications and Preprints

1. F. Caucci, Paracanonical base locus, Albanese morphism, and semi-orthogonal indecomposability of derived categories, preprint arXiv:2110.06795 (2021), to appear in **Selecta Mathematica**.

2. F. Caucci, Higher order embeddings via the basepoint-freeness threshold, (2024), to appear in **Proc. Amer. Math. Soc.** https://doi.org/10.1090/proc/16901

3. F. Caucci, Syzygies of Kummer varieties, arXiv:2303.15392 (2023), to appear in **Transactions of the American Mathematical Society**. Early View DOI: https://doi.org/10.1090/tran/9062

4. F. Caucci and L. Lombardi, Irregular fibrations of derived equivalent varieties, preprint arXiv:2207.14081 (2022), submitted.

5. F. Caucci, L. Lombardi and G. Pareschi, Derived invariance of the Albanese relative canonical ring, **Advances in Mathematics** 419 (2023), Paper No. 108965. https://doi.org/10.1016/j.aim.2023.108965

6. F. Caucci and M. Lahoz, Stability of syzygy bundles on abelian varieties, **Bull. Lond. Math. Soc**. 53 (2021), no. 4, 1030-1036. https://doi.org/10.1112/blms.12481

7. **PhD Thesis** "The basepoint-freeness threshold, derived invariants of irregular varieties, and stability of syzygy bundles", Sapienza University of Rome, 2020. https://iris.uniroma1.it/handle/11573/1355436

8. F. Caucci, The basepoint-freeness threshold and syzygies of abelian varieties, **Algebra & Number Theory** 14 (2020), no. 4, 947-960. https://doi.org/10.2140/ant.2020.14.947

9. F. Caucci and G. Pareschi, Derived invariants arising from the Albanese map, **Algebraic Geometry** 6 (2019), no. 6, 730-746. doi:10.14231/AG-2019-031

10. F. Caucci, Y. Cho and L. Rizzi, On dominant rational maps from a very general complete intersection surface in $\mathbf{P}^4$, **Le Matematiche** 72 (2017), no. 2, 183-194. doi:10.4418/2017.72.2.13

Visiting Positions

19/11/2023 – 25/11/2023: Research visit at University of Barcelona,
invited by M. Lahoz.

25/03/2019 - 31/05/2019: Pre-doctoral Research Stay at University of Barcelona and its Institute of Mathematics (IMUB),
invited by M. Lahoz and financially supported by GNSAGA, INdAM (1.200 EUR).
Topic: Bridgeland stability conditions and abelian varieties.

Participation to Research Projects

Member of GNSAGA - IndAM since 2017.

Member of the ERC Consolidator Grant 2017 "Stability conditions, moduli spaces and enhancements", PI: Prof. Paolo Stellari, University of Milan, from April 2021 to March 2023.

Member of INABAG (Italian Network for Applied and Birational Algebraic Geometry) within the PRIN 2022 Project "Birational Geometry of moduli spaces and special varieties", PI: Prof. Alex Massarenti, University of Ferrara, from May to August 2024.

Seminar Talks

21/05/2024: "On derived categories and motivic classes of projective varieties", University of Bologna.

24/11/2023: "On syzygies of abelian and Kummer varieties", University of Barcelona.

08/11/2023: "Derived categories, Grothendieck group of varieties, and birational geometry", University of Ferrara.

10/11/2022: "Derived categories and motivic classes of irregular varieties", École Polytechnique Fédérale de Lausanne.

21/04/2022: "On the invariance of Hodge numbers under derived equivalence", Roma Tre University.

09/12/2021: "Indecomponibilità semi-ortogonale di categorie derivate", University of Milan.

04/12/2020: "The basepoint-freeness threshold of a polarized abelian variety", The City University of New York.

12/11/2020: "Stability of syzygy bundles on abelian varieties", University of Milan.

17/06/2020: "Derived invariance and the Albanese morphism", University of Florence.

12/12/2019: “The basepoint-freeness threshold and syzygies of abelian varieties”, Sapienza University of Rome.

06/12/2019: “Derived invariants of irregular varieties”, University of Rome Tor Vergata.

26/04/2019: “Derived invariants arising from the Albanese map”, University of Barcelona.

27/04/2018: “Varietà abeliane e varietà irregolari”, Sapienza University of Rome (PhD students seminar).

Invited Talks at Conferences

04/07/2024 - 05/07/2024: “INABAG Kick-off Event”, Politecnico di Torino,
Title: “On syzygies of abelian and Kummer varieties”.

30/06/2022 - 01/07/2022: “Derived Categories and Birational Geometry”,
University of Milan,
Title: “Nonexistence of semi-orthogonal decompositions of derived categories”.

27/04/2021 - 30/04/2021: “Giornate di Geometria Algebrica ed Argomenti Correlati XV”,
Palazzo Feltrinelli, Gargnano (University of Milan),
Title: “Invarianza derivata di alcuni anelli canonici relativi”.

Conferences Organized

11/11/2021 - 12/11/2021: Mini-workshop “Singular Irreducible Symplectic Varieties”,
University of Milan (co-organized with A. Barbieri and P. Stellari).

Poster Presentations

22/09/2023: “Derived invariance of the Albanese relative canonical ring”, School on Recent perspectives on Hodge theory, De Giorgi Centre, Italy.

Other Activities

Referee for: Advances in Mathematics, Annali di Matematica Pura ed Applicata, Journal of Pure and Applied Algebra, Mathematische Zeitschrift.

Reviewer for zbMATH (4 reviews).

Schools and Conferences Attended (selection)

10/06/2024 – 14/06/2024: "Conférence EPIGA 2024", Sorbonne University, France.

12/02/2024 - 14/02/2024: "AGaFE 2024: A conference in honor of Philippe Ellia on the occasion of his retirement", University of Ferrara, Italy.

20/03/2023 - 24/03/2023: "2023 NCTS Higher Dimensional Algebraic Geometry Workshop" (online), NCTS, Taiwan.

19/09/2022 - 23/09/2022: "Recent perspectives on Hodge theory", De Giorgi Centre, Italy.

14/06/2022 - 17/06/2022: "Algebraic Geometry in Roma Tre, on the occasion of Sandro Verra's 70th birthday", Roma Tre University, Italy.

31/05/2021 - 04/06/2021: Virtual workshop "O-minimality and foliations", CIRM, France.

29/07/2019 - 02/08/2019: Summer school "Moduli and Stability Conditions", Leibniz University Hannover, Germany.

24/06/2019 - 28/06/2019: Summer school "Foliations and Algebraic Geometry", Institut Fourier, France.

11/06/2018 - 15/06/2018: INdAM workshop "Birational Geometry and Moduli Spaces", Italy.

19/03/2018 - 23/03/2018: "School on Birational Geometry of Hypersurfaces", Palazzo Feltrinelli – Gargnano del Garda, Italy.

05/02/2018 - 09/02/2018: "Workshop on Complex Algebraic Geometry – Pirola 60th" , University of Barcelona, Spain.

05/06/2017 - 09/06/2017: “Linear Systems on Irregular Varieties”,
Lake Como School of Advanced Studies, Italy.

20/06/2016 - 08/07/2016: Pragmatic 2016 Research School: “Abelian varieties and geometric Galois theory”, Catania, Italy.

Teaching Experiences

Reading Course “Bridgeland stability conditions and applications to abelian surfaces” (Prof. M. Lahoz), University of Barcelona, II sem. a.y. 2018/2019.

Teaching assistant for “Geometria per Ingegneria Medica” (Prof. S. Trapani), University of Rome Tor Vergata, I sem. a.y. 2018/2019.

Reading Course “Deformation theory” (Prof. E. Sernesi), Roma Tre University, II sem. a.y. 2016/2017.

Reading Course “Birational geometry of algebraic varieties (Prof. A. Lopez), Roma Tre University, II sem. a.y. 2016/2017.

Languages

Italian (native language),

English (good knowledge),

French (basic knowledge).

Date: 20/08/2024