

Federico Bambozzi

Personal information

- *Data and place of birth:* July 9, 1985, Loreto (AN), Italy.
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Current position

Tenure track ("Ricercatore di tipo B") at the University of Padova, from 05/12/2022.

Past positions

- from 09/2022 to 11/2022: Research assistant ("Ricercatore di tipo A") at the University of Padova.
- from 06/2021 to 11/2021: DFG postdoc fellow University of Regensburg with the return grant of the project BA 6560 /1-1 entitled "Derived geometry and arithmetic";
- from 12/2018 to 05/2021: DFG postdoc fellow at the Mathematical Institute of the University of Oxford with the project BA 6560 /1-1 entitled "Derived geometry and arithmetic";
- from 01/2017 to 09/2018: Post-doc fellowship at the University of Regensburg supported by the DFG funded CRC 1085 "Higher Invariants. Interactions between Arithmetic Geometry and Global Analysis", with advisor Prof. Denis-Charles Cisinski;
- from 10/2014 to 11/2016: Post-doc fellowship at the University of Regensburg supported by the DFG funded CRC 1085 "Higher Invariants. Interactions between Arithmetic Geometry and Global Analysis", with advisors Prof. Walter Gubler and Prof. Klaus Künnemann;
- from 05/2014 to 09/2014: "Assegno di ricerca" (Italian equivalent of a post-doc fellowship) at University of Padova, funded by MIUR PRIN2010-11 "Arithmetic Algebraic Geometry and Number Theory", under the supervision of Prof. Bruno Chiarellotto.

Education

- 04/2014: Ph.D. in Mathematics at “Università degli studi di Padova” under the supervision of prof. Francesco Baldassarri, with thesis entitled “*On a generalization of affinoid varieties*”.
- 07/2010: Master’s degree in Mathematics at “Università degli studi di Torino” with thesis entitled “*Fourier analysis in L-function theory*”, supervisor Prof. Andrea Mori.
- 07/2007: Bachelor degree in Electronic Engineering at “Università politecnica delle Marche”, with thesis entitled “*On a Family of Circulant Matrices for QC-LDPC Codes*”, supervisor Prof. Franco Chiaraluce.

Awards

- 24/05/2021: Awarded with the Italian national scientific qualification (“Abilitazione Scientifica Nazionale”) as Associate Professor of Geometry and Algebra (SSD MAT 01/A2, Geometria e Algebra).
- 12/2018: Principal investigator of the DFG postdoctoral fellowship grant for the project BA 6560 /1-1 entitled “*Derived geometry and arithmetic*”. Two-year fellowship that has been extended by 6 months due to the covid pandemic.

Publications

- F. Bambozzi, T. Mihara “*Derived Analytic Geometry for \mathbb{Z} -Valued Functions Part I: Topological Properties*”, Bulletin of the Iranian Mathematical Society, Volume 50, 2024.
- F. Bambozzi, K. Kremnizer “*On the Sheafyness Property of Spectra of Banach Rings*”, accepted for publication in the Journal of the London Mathematical Society.
- F. Bambozzi, T. Mihara “*Homotopy Epimorphisms and Derived Tate’s Acyclicity for Commutative C^* -algebras*”, The Quarterly Journal of Mathematics, Volume 74, Issue 2, June 2023, Pages 421–458.
- F. Bambozzi, S. Murro, N. Pinamonti “*Invariant states on noncommutative tori*”, International Mathematics Research Notices 2021.5, March 2021, pp. 3299-3313.
- F. Bambozzi, S. Murro “*On the uniqueness of invariant states*”, Advances in Mathematics, Volume 376, 6 January 2021.
- F. Bambozzi, O. Ben-Bassat, K. Kremnizer “*Analytic Geometry over \mathbb{F}_1 and the Fargues-Fontaine curve*”, Advances in Mathematics, Volume 356, 7 November 2019.
- F. Bambozzi, A. Vezzani “*Rigidity for rigid analytic motives*”, Journal of the Institute of Mathematics of Jussieu, 2019, pp. 1-29.
- F. Bambozzi “*Theorems A and B for dagger quasi-Stein spaces*”, The Quarterly Journal of Mathematics, Volume 70, Issue 2, June 2019, pp. 703–735.

- F. Bambozzi, O. Ben-Bassat, K. Kremnizer “*Stein domains in Banach algebraic geometry*”, Journal of Functional Analysis, Volume 274, Issue 7, 1 April 2018, pp. 1865-1927.
- F. Bambozzi “*Closed graph theorems for bornological spaces*”, Khayyam Journal of Mathematics, Volume 2, Issue 1, 2016, pp. 81-111.
- F. Bambozzi, O. Ben-Bassat “*Dagger Geometry as Banach Algebraic Geometry*”, Journal of Number Theory 162, 2016, pp. 391-462.
- M. Baldi, F. Bambozzi, F. Chiaraluce “*On a Family of Circulant Matrices for Quasi-Cyclic Low-Density Generator Matrix Codes*”, IEEE transactions on Information Theory, September 2011, volume 57, number 9. Available at <http://arxiv.org/pdf/1309.1286.pdf>
- M. Baldi, F. Bambozzi, F. Chiaraluce “*A class of invertible circulant matrices for QC-LDPC code*”. Proc. International Symposium on Information Theory and its Applications, ISITA 2008, Auckland, New Zealand, 7-10 December 2008, pp. 223-228, ISBN: 978-1-4244-2069-8, DOI: 10.1109/ISITA.2008.4895413.

Preprints

- F. Bambozzi, B. Chiarellotto, P. Vanni, “*The tempered disk and the tempered cohomology*”, <https://arxiv.org/pdf/2410.09473>.
- From June 2016 a new version of my Ph.D. thesis is available on arXiv at the link <http://arxiv.org/pdf/1401.5702.pdf>

Teachings

- 10/2024-01/2025: Class of Mathematics (basic calculus) for Molecular Biology, for 72 hours of teaching.
- 11/2023-12/2023: 16 hours of teaching of Commutative Algebra for the master class of Mathematics.
- 10/2023-01/2024: Class of Mathematics (basic calculus) for Molecular Biology, for 72 hours of teaching.
- 05/2023-06/2023: Course for Ph.D. students entitled “*Derived geometry*”, for 16 hours of teaching.
- 10/2022-01/2023: Class of Mathematics (basic calculus) for Molecular Biology, for 72 hours of teaching.
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- Teaching for a cycle of student seminars entitled “*Non-Archimedean analysis*” at Universität Regensburg in the winter term of 2014/2015, for 20 hours of teaching.
- Tutoring for the course of Mathematics of the Bachelor in “*Facoltà di Agraria*” of “*Università degli studi di Padova*”(20 hours of tutoring) in 2013.

1 Advising

Ph.D. advising

- 11/2024 Stefano Rosarin, Ph.D. student cosupervised with Simone Murro. Ongoing.

Master students advising

- 11/2024: cosupervision of the master thesis of Matteo Vassallo with a project on derived noncommutative geometry.
- 17/09/2024: supervision of the master thesis *"The Adelic point of view on Abelian L-functions"* Luca Collauto.
- 12/2019-03/2020: Part C/OMMS supervisor for master students of the University of Oxford with a dissertation on Berkovich spaces.

Talks

Invitation to conferences

- 20-24/01/2025: Invited speaker at the conference *"Stellenbosch Number Theory Conference 2025"* in Stellenbosch.
- 6/12/2024: Invited speaker at the conference *"Champs algébriques et catégories dérivées"* in Limoges.
- 13-14/05/2024: Two lectures at the work shop *"Purity, Approximation Theory and Spectra"* in Cetraro, with two lectures entitled *"A perspective on derived non-commutative algebraic geometry"*.
- 07/09/2023: Speaker at UMI congress in the algebra section with a talk entitled *"Bornological and condensed mathematics"*.
- 10/09/2021: Invited speaker at *"Intercity seminar on Arakelov geometry"* in Regensburg with a talk entitled *"The sheafyness problem for Banach rings"*.
- 03/2021-04/2021: Two lectures at the series of online lectures *"Derived Bornological and Analytic Geometry"*, one entitled *"Homological Bornological Algebra"* and the other *"Sheafyness of Banach Ring Spectra"*. More information and recordings at <https://sites.google.com/tcd.ie/hmispringlectureseries2021/home>
- 13/09/2019: Invited speaker at *"Intercity seminar on Arakelov geometry"* in Kyoto with a talk entitled *"Analytic motivic sheaves over \mathbb{Z} "*.
- 06/06/2019: Speaker at the *"INdAM Program on Serre Conjectures and the p-adic local Langlands program"* in Padova with a talk entitled *"A global perspective on Hodge Theory"*. Video available at https://mediaspace.unipd.it/playlist/dedicated/119214951/1_d8zm99gi/1_4p4763qu

- 08/09/2017: Invited speaker at “Intercity seminar on Arakelov geometry” in Beijing with a talk entitled “*Analytic geometry over \mathbb{F}_1 and applications*”.
- 31/07/2017: Invited speaker at the workshop entitled “Non-Archimedean and Tropical Geometry”, at Universität Regensburg, with an introductory lecture on Berkovich Spaces.
- from 13/12/2015 to 19/12/2015: participation at the workshop 1551 of the Mathematisches Forschungsinstitut of Oberwolfach, entitled “*Non-Archimedean Geometry and Applications*”.
- 23/06/2015: Speaker at the workshop entitled “Analytic and Arithmetic Geometry”, held at the Mathematical Institute of the University of Oxford with a talk entitled “*Quasi-abelian categories in analytic geometry*”.
- 10/09/2014: Invited speaker at “Intercity seminar on Arakelov geometry” in Rome, with a talk entitled “*Dagger analytic geometry*”.

Other talks

- 27/06/2024: Seminar at the GeNoCAS entitled “*Non-commutative derived geometry*”, available at the link <https://www.youtube.com/watch?v=jbzXKP6xkCo>.
- 07/04/2023: Seminar at the University of Verona entitled “*Non-commutative Gelfand’s duality - The algebraic case*”.
- 07/02/2023: Seminar at the University of Oxford entitled “*Bornological and condensed mathematics*”.
- 24/01/2023: Seminar at the University of Genova entitled “*The notion of point in noncommutative geometry and mathematical physics*”.
- 14/03/2022: Seminar at the University of Oxford entitled “*Bornological and condensed mathematics*”.
- 26/10/2021: Seminar at the MALGA series of seminar organized by the Universities of Padova and Verona entitled “*A HAG context for analytic geometry*”.
- 21/06/2021: Seminar at the HIOB seminar at the University of Regensburg entitled “*HAG contexts for analytic geometry*”.
- 11/02/2020: Seminar at the University of Warwick entitled “*Analytic spaces over Banach rings*”.
- 16/05/2019: Seminar at the Institut Fourier in Grenoble entitled “*Analytic spaces over \mathbb{Z} and Hodge Theory*”.
- 06/07/2018: Seminar at the Mathematisches Institut of Universität Freiburg with the title “*The Rigidity Theorem for motives of non-Archimedean analytic spaces*”.
- 23/02/2018: Seminar at the Mathematical Institute of the University of Oxford with the title “*Derived analytic geometry over \mathbb{F}_1 and p -adic Hodge Theory*”.

- 24/04/2017: Seminar at Institut de Mathematiques Jussieu with the title "*Analytic geometry over \mathbb{F}_1 and applications*" in the cycle of seminars of Algebraic analysis.
- 07/01/2016: Talk at the "Oberseminar Arithmetische Geometrie" at Universität Regensburg with the title "*Foundations of derived analytic geometry*".
- 09/06/2015: Seminar at Universität Regensburg with the title "*Quasi-abelian categories in analytic geometry*".
- 09/03/2015: Seminar at the University of Padova with the title "*Dagger Geometry as Banach Algebraic Geometry*".
- 10/12/2014: Seminar at the Humboldt University of Berlin with title "*Analytic spaces and relative algebraic geometry on quasi-abelian categories*".
- 17/11/2014: Seminar at the Institut de Mathematiques Jussieu with title "*Dagger analytic geometry*" in the cycle of seminars of Algebraic analysis.
- 15/04/2014: Seminar at Universität Regensburg with title "*Dagger geometry*".

Visiting periods

- Visit at the Mathematisches Institut Universität Freiburg, invited by Simone Murro from 14/10/2018 to 03/11/2018.
- Long Visit at the Institute of Mathematics of the University of Oxford. Invited by Prof. Yakov Kremnizer from 01/02/2017 to 31/03/2017.
- In several occasions I have been invited by Prof. Yakov Kremnizer at the Institute of Mathematics of the University of Oxford for short visits: from 17/09/2018 to 29/09/2018, from 18/02/2018 to 03/03/2018 24/09/2017, from 24/09/2017 to 14/10/2017, from 18/09/2016 to 01/10/2016, from 13/03/2016 to 19/03/2016 and from 11/06/2015 to 25/06/2015.

Organization of conferences

- Organization of the conference "An Invitation to Derived Geometry", 2-6 September 2024 at the department of Mathematics of the University of Padova.
- Organization of the workshop entitled "Algebraic and Geometric aspects in Quantum Field Theory", 16-18 April 2019, Universität Freiburg.

Peer-review activity

I am or I have been active as referee for following journals:

- Advances in Mathematics;
- Annales scientifiques de l'École normale supérieure;

- Algebra and Number Theory;
- Bulletin des Sciences Mathématiques;
- the Journal of Number Theory;
- the Quarterly Journal of Mathematics;
- Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales. Serie A. Matemáticas
- Advances in Operator Theory;
- St. Petersburg Mathematical Journal;
- Rendiconti del Seminario Matematico della Università di Padova;
- Operators and matrices;
- FILOMAT;
- Annals of Mathematics and Physics;
- Mathematical and Computational Applications;
- Journal of Mahani Mathematical Research;
- Far East Journal of Mathematical Sciences;
- Springer Nature.

Scientific activity

Research interests

- Berkovich, Huber analytic spaces and the global analytic spaces of Poineau.
- Stein spaces in complex and non-Archimedean geometry and related notions.
- Bornological algebraic structures and their use in geometry and functional analysis.
- Derived geometry in a broad sense, both algebraic and analytic.
- Exact categories and in particular quasi-Abelian categories.
- Geometry over \mathbb{F}_1 and its applications to arithmetic, to L-function theory and Langlands program.
- Tropical geometry and its relations with analytic geometry.
- Homotopy theory and ∞ -category.
- Motives in algebraic and analytic geometry.

- Rigid cohomology and p -adic differential equations.
- Non-commutative geometry and $*$ -algebras.

October 15, 2024

Bambozzi Federico