

# Anna Barbieri

## Curriculum Vitae

### Education

27/02/2017 PhD, Dottorato di ricerca in Matematica e Statistica, Università di Pavia  
19/03/2013 Master, Laurea Magistrale in Matematica, Università di Udine,  
14/12/2010 Bachelor, Laurea Triennale in Matematica, Università di Udine,

### Academic positions

since 01/11/2024 Junior lecturer (Ricercatrice a tempo determinato - rtd-A),  
Università di Verona  
01/02/2023 - 31/10/24 postdoc, Università di Verona  
01/06/2022 - 31/01/23 postdoc Università degli Studi di Padova  
01/06/2020 - 31/05/22 postdoc, Università degli Studi di Milano  
01/01/2017 - 31/05/20 Research associate, University of Sheffield, UK

### Teaching activity at university level

#### PhD courses

2023 **Bridgeland stability conditions in algebraic geometry and representation theory**  
16 h, Doctoral Program in Math. Sciences (Mathematics), Padova, (*in inglese*)

#### Supervision

2025 Morgane Ortiz, master student - École Normale Supérieure de Rennes (France),  
6-weeks-internship 04/06-15/07/2025, "Auslander-Reiten theory of module categories"

#### As lecturer

2025-26 I sem., **Differential Geometry**,  
Laurea Magistrale in Mathematics, Verona (*English*)  
2024-25 **Homological Algebra - Esercitazioni**,  
Laurea Magistrale in Mathematics, Verona (*English*)  
2023-24 part of **Algebra Lineare e Geometria**, main lecturer  
Laurea Triennale in Ingegneria dei Sistemi Medicali per la Persona, Verona (*Italian*)  
2022-23 part of **Fondamenti di algebra lineare e geometria** (Geometry), lecturer  
Laurea Triennale in Ingegneria dell'Energia, Università di Padova (*Italian*)  
2019-20 **Commutative algebra and algebraic geometry, part II**, lecturer  
master course in Mathematics, University of Sheffield (*English*)  
2018-19 **Commutative algebra and algebraic geometry, part II**, lecturer  
master course in Mathematics, University of Sheffield (*English*)

### Tutoring and exercise sessions

- 2021-22 **Geometria 3** (Topology), 30 h  
Laurea Triennale in Matematica, Università di Milano (*Italian*)
- 2020-21 **Geometria 3** (Topology), 36 h  
Laurea Triennale in Matematica, Università di Milano (*Italian*)
- 2017-18 **Advanced calculus and linear algebra**, 20 h  
bachelor course in Mathematics, University of Sheffield (*English*)
- 2015-16 **Algebra Lineare** (Linear Algebra), 15 h  
Laurea Triennale in Matematica, Università di Pavia (*Italian*)
- 2015-16 **Matematica per neo-iscritti** (Basics of maths), 24 h  
Laurea Triennale in Ingegneria, Università di Pavia (*in italiano*)
- 2014-15 **Geometria 2** (Curves and surfaces), 10 h  
Laurea Triennale in Matematica, Università di Pavia (*Italian*)

### Publications

#### PhD Thesis

- [1] *Frobenius type structures and manifolds from stability conditions on quiver categories*, (2017).

#### Peer-reviewed articles

- [2] *Frobenius type and Cecotti-Vafa-structures for Donaldson-Thomas theory and a convergence property*, A. Barbieri, J. Stoppa, in *Communications in Analysis and Geometry*, (2019) Vol. 27, No. 2, pages 287-327.
- [3] *A construction of Frobenius manifolds from stability conditions*, A. Barbieri, J. Stoppa, T. Sutherland, in *Proceedings of the London Mathematical Society*, (2019) 118(6), pp 1328-1366.
- [4] *A Riemann-Hilbert problem for uncoupled BPS structures*, A. Barbieri, in *Manuscripta Mathematica*, (2020) 162, pages 1–21.
- [5] *A quantized Riemann-Hilbert problem in Donaldson-Thomas theory*, A. Barbieri, T. Bridgeland, J. Stoppa, in *International Mathematics Research Notices*, (2022) Vol. 2022, Issue 5, pages 3417–3456.
- [6] *Stability conditions as quadratic differentials: subsurface collapsing*, A. Barbieri, M. Möller, Y. Qiu, J. So, in *J. für die reine und angewandte Mathematik* (Crelle's journal), No. 810, pages 49-95 (2024)
- [7] *A smooth compactification of spaces of stability conditions: the case of the  $A_n$  quiver*, A. Barbieri, M. Möller, J. So, in *Forum of Mathematics, Sigma*, No. 12, p e101 (2024).
- [8] *Spaces of Bridgeland stability conditions in Representation Theory*, A. Barbieri, in *Representations of Algebras and Related Topics* (Proceedings Volume of the XX ICRA) EMS Press, pages 47-83 (2025)

#### Preprint

- [9] *Verdier quotients of Calabi-Yau categories from quivers with potential*, A. Barbieri, Y. Qiu, arXiv 2411.00207 – submitted

### Research interests

- Bridgeland stability manifolds;
- geometric and algebraic structures from meromorphic differentials on Riemann surfaces;
- representation theory; enumerative problems; wall-crossing phenomena.

**Research visits ( $\geq 1$  week)**

26-31/01/2026	Lancaster (UK), invited by David Pauksztello.
25/03-03/04/2025	Lancaster (UK), invited by David Pauksztello.
26/05-21/06/2024	Simons Center, StonyBrook (USA), special program “Geometric, Algebraic, and Physical structures around the moduli of Meromorphic Quadratic Differentials”, invited.
5-16/11/2023	Bonn, Hausdorff Institute, Junior Semester Program “Algebraic Geometry: Derived categories, Hodge Theory and Chow Groups”
8-12/05/2023	Goethe University of Frankfurt, invited by Martin Moeller.
28/03-02/04/2022	Goethe University of Frankfurt, invited by Martin Moeller.
6-11/01/2019	Lisbon University, invited by Davide Masoero.

**Talks at national and international conferences and workshops**

( Contributed: 8.,19, invited: all others.)

**Mini-courses:**

1. 3-6/08/2022, workshop **ICRA 2022** - International Conference on Representations of Algebras, Montevideo (Uruguay), title: Spaces of Bridgeland stability conditions

**Seminars at conferences and workshops:**

2. 23-27/06/2025, *SQUARE: Symposium on Quivers, Algebras and Representation theory*, Monte Bondone (Trento), title: Weighed marked surfaces and applications
3. 31/03/2025, *CLAN meeting*, Durham (UK), title: Categories from tilings of marked surfaces
4. 08-12/07/2024, workshop: *Simple-mindedness, silting and stability*, Lake District, UK, title: 3CY categories from surfaces under Verdier quotient
5. 3-7/06/2024, **Simons Center** for Geometry and Physics, Stony Brook (USA), *Workshop: Geometric, Algebraic, and Physical structures around the moduli of meromorphic quadratic differentials*, title: Multi-scale stability conditions for  $A_n$  Ginzburg categories
6. 01/12/2023, *Algebraic Geometry in Pavia: Young Perspectives*, title: Moduli spaces of stability conditions and of quadratic differentials
7. 6-11/11/2023, Bonn Hausdorff Institute, *Derived Workshop*, title: Moduli spaces of stability conditions and of quadratic differentials (Bonn, Germany)
8. 09/2023, *Congresso UMI*, Pisa, Sez. 14 - algebra, “Quozienti di categorie di Ginzburg”
9. 25-29/04/2022, *Workshop in Quantum Geometry* presso IHES (Paris, France) title: “Riemann-Hilbert problem from refined Donaldson-Thomas theory”
10. 30/09-1/10/2021 conference *Ricercatori in Algebra e Geometria*, Pisa, Scuola Normale Superiore, title: From stability conditions to special functions
11. 25-28/11/2019 Workshop *BPS-states, topological recursion, exact WKB and abelianisation*, Hamburg (Germany), title: A quantum Riemann-Hilbert problem in Donaldson-Thomas theory
12. 15-16/08/2019 **MSRI workshop** *Holomorphic Differentials in Mathematics and Physics - Connections for women*, MSRI, Berkeley (USA), title: Kontsevich-Soibelman wall-crossing formula and a (quantum) Riemann-Hilbert problem
13. 27-30/03/2019 *Geometry and Mathematical Physics Workshop*, Loughborough (UK) title: A Riemann-Hilbert problem for uncoupled BPS structures

14. 29/10-02/11/2018 **BIRS workshop** *Stability Conditions and Representation Theory of Finite-Dimensional Algebras* at Casa Matemática Oaxaca (Mexico)  
title: A Riemann-Hilbert problem from stability conditions
15. 14/12/2017 East Midlands Seminars in Geometry on *Stability conditions*, Leicester (UK),  
title: Geometric structures on some spaces of stability conditions
16. 04-08/12/2017 Workshop  *$A_\infty$ -structures and representation theory*, Bonn (Germany)  
title: A construction of Frobenius manifold from stability conditions on  $\text{Rep}(\mathbb{Q})$
17. 23-24/02/2017 *2CinC, Cow and Calf Conference in Cardiff*, Cardiff (UK)  
title: A Frobenius type structure from stability data
18. 19-20/12/2016, *Seminari di Natale*, Milano Statale, title: A construction of Frobenius manifold from stability conditions
19. 07/2016 *Summer school in enumerative geometry*, SISSA, Trieste, title: A convergence property for a deformation of Joyce generating functions

**Other invited talks:**

20. 02/04/2025, Pure Maths Seminar, Lancaster (UK), "Decorated marked surfaces and applications"
21. 29/01/2025, LAGOON webinar, "A compactification of the stability space for the  $A_n$ -quiver"
22. 16/01/2025, online seminar New Directions in Group Theory and Triangulated Categories, "A compactification of the stability space for the  $A_n$ -quiver"
23. 20/03/2024, SISSA, Trieste, "Moduli spaces of Bridgeland stability conditions and of quadratic differentials"
24. 7/12/'23, FD-seminar (online), "Multi-scale stability conditions on  $A_n$ -Ginzburg categories"
25. 6-7/06/2023, Nouveau séminaire ALPE, Toulouse (Fr), "Moduli spaces of Bridgeland stability conditions and of multi-differentials"
26. 19/04/2023, MALGA seminars (Padova-Verona), "Categories from marked surfaces and their exchange graphs"
27. 01/12/2022, *LAGOON seminars series - Leicester (UK) and Cologne (De)* (online), "Categories associated with weighted marked surfaces and their stability manifold"
28. 15/11/2022, Milano Statale, "Ginzburg categories associated with weighted marked Riemann surfaces"
29. 21/06/2022, Padova, "On quiver categories associated to quadratic differentials"
30. 17/05/2022, Università e Politecnico di Torino (online), "On quiver categories associated to quadratic differentials"
31. 29/11/2021, seminario in *Cerimonia in memoria di Paolo de Bartolomeis*, Firenze, dipartimento di Matematica "Ulisse Dini", come vincitrice di un assegno di ricerca a lui dedicato
32. 09/03/'21, *Online Cluster Algebra Seminars*, "From special functions to stability conditions"
33. 18/02/2021, Roma 3 (online), "From Bridgeland stability conditions to special functions"
34. 24/06/2020, Milano (online), "From Bridgeland stability conditions to special functions"
35. 05/06/2020, MPI (Bonn), corso di ricerca online *Stability conditions, DT invariants and their geometry*, organizzato da G.Borot, "A quantum Riemann-Hilbert problem from DT theory"
36. 23/04/2020, Parigi (online), "From Bridgeland stability conditions to special functions"
37. 13/03/2019, London UCL, "A Riemann-Hilbert problem for uncoupled BPS structures"

38. 12/03/2019, Canterbury, Kent (UK), *Mathematical Physics and Integrable Systems seminars in Kent*, "A Riemann-Hilbert problem for uncoupled BPS structures"
39. 07/01/2019, Lisbon, *Seminário do Grupo de Física Matemática*, "Introduction to Wall-Crossing for Bridgeland stability conditions"
40. 14/11/2018, Birmingham, per *Geometry and Mathematical Physics seminars*, "A Riemann-Hilbert problem for BPS structures"
41. 24/05/2018, EDGE Seminars at Edinburgh, "A Riemann-Hilbert problem for uncoupled BPS structures"
42. 05/04/2018, SISSA, Trieste, "A Riemann-Hilbert problem for BPS structures"
43. 15/03/2018, Oslo, Algebra seminar, "A Riemann-Hilbert problem for BPS structures"
44. 29/11/2017, Sheffield, *Pure Maths Colloquium*, "Introduction to Frobenius manifolds"
45. 26/02/2016, Cambridge, *Junior Geometry Tea*, "Frobenius manifolds and isomonodromic families of connections"

### Workshops and seminars organised

- 2025 "Cluster Colloquium", monthly online seminar co-organised with İ. Çanakçı, G. Cerulli Irelli, D. Labardini-Fragoso, J. Simental, S. Stella
- 11/2024 "Topological and Geometrical Methods in Representation Theory", one-day workshop in Verona, co-organised with Lidia Angeleri, Alessio Cipriani (PI), Rosie Laking
- 11/2022 "Derived categories and mirror symmetry", one-day mini-workshop in Padova, Math department
- 11/2021 "Mini-workshop: singular irreducible symplectic varieties", 2-days workshop in Milano Statale, co-organised with Paolo Stellari, Federico Caucci (Milano)
- 06/2021 "BPS states, Mirror Symmetry and Exact WKB", 5-days conference, organised with T. (2020) Bridgeland, A. Brini, K. Osuga
- 11/2019 GLEN meeting at Sheffield "Singularities and Derived Categories": 2-days workshop, co-organised with C. Manolache, N. Pavic, E. Shinder (Sheffield, UK).
- 02/2018 GLEN meeting at Sheffield "Algebraic Geometry", 2-days workshop, co-organised with B. Bolognese, J. Karmazyn, E. Shinder (Sheffield, UK).

### Participation in national and international research projects

- 2025 FIS-2021, PI Lidia Angeleri-Hügel, "Large views of small phenomena: decompositions, localizations and representation type" (LAVIE).
- 2024 PRIN-2022, PI Lidia Angeleri-Hügel, "Structures for Quivers, Algebras and Representations" (SQUARE).
- 2023 REDCOM-2018, PI Lidia Angeleri-Hügel, "Reducing complexity in algebra, logic, combinatorics", Fondazione Cariverona "Ricerca Scientifica di Eccellenza 2018".
- 2020-22 ERC CoG-771507-StabCondEn, PI Paolo Stellari, "Stability Conditions, Moduli spaces, and enhancements".
- 2017-20 ERC AdG-670298-StabilityDTCluster, PI Tom Bridgeland, "Stability conditions, Donaldson-Thomas invariants and cluster varieties".
- 2013-16 ERC StG-307119-StabAGDG, PI Jacopo Stoppa, "Stability and wall-crossing in algebraic and differential geometry".