Barbara Bolognese

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EDUCATION

PHD, Mathematics
Northeastern University, Boston, MA   May 2016
Thesis: *Two results on divisors on moduli spaces of sheaves on algebraic surfaces:*
generic Strange Duality on abelian surfaces and Nef cones of Hilbert schemes of points on surfaces with
irregularity zero.
Thesis advisor: ALINA MARIAN

DIPLOMA, Piano Performing
Conservatorio di Musica "Luisa D'Annunzio", Pescara, Italy   October 2012

LAUREA SPECIALISTICA (MSc), Mathematics
Università degli studi di Roma "La Sapienza", Rome, Italy   July 2011
Thesis: *Bridgeland stability conditions on varieties with trivial canonical bundle and*
Fourier-Mukai transforms.
Thesis advisor: ENRICO ARBARELLO

LAUREA TRIENNALE (BSc), Mathematics
Università degli studi di Roma "La Sapienza", Rome, Italy   October 2009
Thesis: *Vector bundles and characteristic classes* (in Italian)
Thesis advisor: ENRICO ARBARELLO

POSITIONS

CURRENT:

POSTDOCTORAL ASSOCIATE, Goethe University, Frankfurt, Germany   November 2021 -

PAST:

POSTDOCTORAL ASSOCIATE, University of Roma Tre, Rome, Italy   December 2019 - November 2021

RESEARCH ASSOCIATE, University of Sheffield, Sheffield, UK   January 2017 - November 2019

POSTDOCTORAL FELLOW, Fields Institute, Toronto, ON, Canada   July - December 2016

RESEARCH INTERESTS

My research mainly focuses on two research topics: Bridgeland stability with a view towards Bridgeland stability manifolds, moduli spaces of sheaves and moduli spaces of Bridgeland stable complexes on algebraic surfacesm and tropical/non-archimedean geometry.

PREPRINTS

1. B. Bolognese, A. Küronya and M. Ulirsch, *P=W phenomena on abelian varieties.* `arXiv:2303.03734`
2. B. Bolognese and D. Fiorenza, *Fullness of exceptional collections via stability conditions – A case study: the quadric threefold.* `arXiv:2103.15205`

PUBLICATIONS

1. B. Bolognese, *A local compactification of the Bridgeland stability manifold.* `arXiv:2006.04189`, to appear in Adv. in Geom.
2. B. Bolognese, M. Brandt, L. Chua, *From Curves to Tropical Jacobians and Back.* In: Smith G., Sturmfels B. (eds) Combinatorial Algebraic Geometry. Fields Institute Communications, vol 80. Springer, New York, NY (2017).
3. B. Bolognese, C. Harris, J. Jelisiejew, *Equations and Tropicalization of Enriques Surfaces.* In: Smith G., Sturmfels B. (eds) Combinatorial Algebraic Geometry. Fields Institute Communications, vol 80. Springer, New York, NY (2017).
4. B. Bolognese, J. Huizenga, Y. Lin, E. Riedl, B. Schmidt, M. Woolf, X. Zhao, *Nef cones of Hilbert schemes of points.* Algebra & Number Theory 10 (4), 907-930 (2016).
5. B. Benedetti, B. Bolognese, M. Varbaro, *Regulating Hartshorne's connectedness theorem*, J Algebr Comb (2017) 46: 33. https://doi.org/10.1007/s10801-017-0744-8.
6. B. Bolognese, A. Marian, D. Oprea and K. Yoshioka: *On the strange duality conjecture for abelian surfaces II*, J. Algebraic Geom. 26 (2017), 475-511.
7. B. Bolognese, *Two results on divisors on moduli spaces of sheaves on algebraic surfaces: generic Strange Duality on abelian surfaces and Nef cones of Hilbert schemes of points on surfaces with irregularity zero.* PhD Thesis. Northeastern Digital Repository.

TALKS

Invited talks in conferences:

1. Università de L'Aquila, "Algebraic Geometry in L'Aquila", July 2023. Talk *TBA*

2. Banff Workshop "Derived, Birational, and Categorical Algebraic Geometry", November 2021. Talk *A partial compactification of the stability manifold*

3. Giornate di Geometria Algebrica, Gargnano sul Garda, April 27th-30th 2021. Talk *Fullness of exceptional collections via stability conditions.*

4. Banff Worhshop "Derived, Birational, and Categorical Algebraic Geometry", November 2021. Talk *A partial compactification of the stability manifold*

5. Università di Bologna, sede di Ravenna, Workshop "EXARCHOS", January 22nd-24th 2020. Talk *A partial compactification of the stability manifold.*

6. Fields Institute, Retrospective Workshop on Combinatorial Algebraic Geometry, June 18th - 22nd 2018. Talk *On the connectivity of dual graphs of projective curves.*

7. INdAM, Conference "Birational Geometry and Moduli Spaces", June 11th-15th 2018. Talk *Nef cones of Hilbert schemes of points via Bridgeland stability.*

8. University of Loughborough, LMS Regional Meeting and Workshop, September 18th-21st 2017. Talk *Nef cones of Hilbert schemes of points via Bridgeland stability*.

9. University of Oxford, COW (Cambridge, Oxford and Warwick) meeting, March 9th 2017. Talk *Strange Duality on abelian surfaces*.

10. CMS Winter Meeting at Niagara Falls, Section on Combinatorial Algebraic Geometry, December 4th, 2016. Talk *On the connectivity of dual graphs of projective curves*.

11. University of Rome "La Sapienza", Conference "Algebraic Geometry and Representation Theory in Rome", December 21st-23rd, 2015. Talk *Strange duality on algebraic surfaces*.

1. April 2018: *Bridgeland Stability Conditions on Surfaces*. Five-hour intensive mini-course at the conference "Modern and Classical aspects of algebraic curves", Pedagogical University of Krakow.

2. January 2017: *An introduction to Bridgeland stability conditions*. Five-hour intensive minicourse at the "Introductory Workshop on Stability conditions, Quivers and DT invariants", University of Sheffield.

Selected invited talks in seminars:

1. University of Utrecht, Algebraic Geometry seminar, Fall 2023, Talk *P=W phenomena on abelian varieties*.
2. University of Roma Tre, Geometry Seminar, October 28th 2021. Talk *Stability conditions and exceptional collections*.
3. University of Roma Tre, Geometry Seminar, February 25th 2019. Talk *Spaces of stability conditions and degenerations*.
4. University of Oslo, Algebraic Geometry Seminar, February 7th 2019. Talk *Spaces of stability conditions and degenerations*.
5. University of Birmingham, Algebraic Geometery Seminar, January 30th 2019. Talk *Spaces of stability conditions and degenerations*.
6. University of Plymouth, Algebraic Geometry Seminar, December 13th 2017. Talk *The birational geometry of moduli spaces via Bridgeland stability*.
7. University of Sheffield, Pure Math Colloquium, May 10th 2017. Talk *On the connectivity of dual graphs of projective curves*.
8. University of Warwick, Algebraic Geometry Seminar, March 7th 2016. Talk *Nef cones of Hilbert schemes of points via Bridgeland stability*.
9. Mc Master University, Algebra Seminar, November 7th, 2016. Talk *On the connectivity of dual graphs of projective curves*.
10. Fields Institute, Thematic program on Combinatorial Algebraic Geometry Seminar, October 11th, 2016. Talk *Nef cones of Hilbert schemes of points on surfaces via Bridgeland stability conditions*.
11. Colorado State University, FRAGMENT Seminar, September 28th, 2016. Talk *Nef cones of Hilbert schemes of points on surfaces via Bridgeland stability conditions*.
12. Boston College, Algebraic Geometry Seminar, January 28nd, 2016. Talk *Generic Strange Duality on abelian surfaces*.
13. University of Massachusetts Amherst, Valley Geometry Seminar, January 22nd, 2016. Talk *Generic Strange Duality on abelian surfaces*.
14. University of Utah, University of Utah Algebraic Geometry Seminar, December 8th, 2015. Talk *Strange Duality on Algebraic Surfaces*.
15. University of Miami, University of Miami Combinatorics Seminar, November 30th, 2015. Talk *Dual graphs of projective curves*.
16. Harvard University, Harvard-MIT Algebraic Geometry Seminar, April 7th, 2015. Talk *Rank one Strange Duality on Abelian Surfaces*.
17. Northeastern University, Geometry, Algebra, Singularities and Combinatorics Seminar, November 24th, 2014. Talk *Generic Strange Duality on Abelian Surfaces*.

18. Tufts University, Algebra and Geometry Seminar, November 4th, 2014. Talk *Generic Strange Duality on Abelian Surfaces and Local Freeness of the Verlinde sheaves*.

Informal/Expository:

1. University of Sheffield, Workshop on Stability, DT Invariants and Quiver Varieties, January 9-13, 2016. Five hour mini-course *An introduction to Bridgeland Stability Conditions*.
2. MIT-NEU Graduate Student Seminar on Moduli spaces of sheaves on K3 surfaces, April 2016. Talk *Examples of hyperkaehler manifolds as moduli spaces of sheaves on K3 surfaces*.
3. Northeastern Graduate Student Seminar, March 2nd, 2016. Talk *A survival guide to moduli spaces*.
4. MIT-NEU Graduate seminar on quiver varieties, April 28th, May 5th, May 8th, 2015. Talk *An introduction to Hodge Theory*.
5. MIT-NEU Graduate seminar on Quantum cohomology and Representation theory, February 3rd, February 10th 2014. Talk *A general introduction to the Hilbert Scheme of Points on the plane*.
6. Northeastern Graduate Student Seminar, October 2nd, 2014. Talk *Generic Strange Duality and local freeness of the Verlinde sheaves over abelian surfaces*.
7. Harvard AGLS Seminar, March 26th, 2014. Talk *Generic Strange Duality and local freeness of the Verlinde sheaves over abelian surfaces*.
8. MIT-NEU Graduate seminar on Quantum cohomology and Representation theory, Fall 2013. Talk *Stable Maps and Quantum Cohomology*.
9. Northeastern Graduate Student Seminar, April 9th, 2013. Talk *Projectivity and birational geometry of the Bridgeland moduli spaces on a K3 surface*.
10. MIT-NEU Cluster Algebras Seminar, October 27th, 2011. Talk *Cluster Algebras from surfaces*.

TEACHING EXPERIENCE

University of Roma Tre:

Spring 2021: Esercitazioni per il corso di Algebra Lineare - GE110
Fall 2020: Esercitazioni per il corso di Geometria 2 - GE210
Spring 2020: Esercitazioni per il corso di Topologia - GE220

University of Tor Vergata:

Spring 2019: 30 hour Graduate Course *Bridgeland Stability Conditions*

Northeastern University:

Fall 2015: *Mathematical Thinking*, Lecturer.
Spring 2015: *Mathematical Thinking*, Lecturer.
Fall 2014: *Calculus 3*, Teaching Assistant.
Spring 2014: *Mathematical Thinking*, Lecturer.
Fall 2013: *Mathematical Thinking*, Lecturer.
Spring 2013: *Mathematical Thinking*, Lecturer.
Fall 2012: *Mathematical Thinking*, Teaching Assistant.
Spring 2012: *Calculus 3*, Teaching Assistant.
Fall 2011: *Calculus 3*, Teaching Assistant.

AWARDS

1. Northeastern University, Teaching Assistantship (since 2011)

2. Northeastern University, Special Provost Fellowship for University Excellence (since 2011)

LANGUAGES

ITALIAN (mother tongue), ENGLISH (fluent), SPANISH (good written and oral comprehension), FRENCH (good written comprehension), RUSSIAN (good written comprehension) and LATIN (good written comprehension).

PROFESSIONAL ACTIVITIES

SEMINARS AND CONFERENCES ORGANIZED:

1. Rome, joint mathematical workshop "Winter Meeting in Algebra and Geometry in Rome", Fall 2023, co-organizer.
2. Rome, joint mathematical workshop "Winter Meeting in Algebra and Geometry in Rome", Fall 2022, co-organizer.
3. University of Frankfurt, Conference "Newton-Okounkov bodies and tropical geometry", Fall 2022, co-organizer.
4. University of Roma Tre, Christmas Conference, December 2021, co-organizer.
5. University of Roma Tre, Virtual Geometry Seminar, Fall2020-Spring2021, organizer.
6. Geometry in Pairs, University of Roma Tre, Fall 2019, co-organizer.
7. GLEN (Glasgow, Loughborough, Edinburgh and Nottingham) two-day workshop, Spring 2018, co-organizer.
8. Sheffield Algebra and Algebraic Geometry Seminar, Spring 2018, organizer.
9. Current development in Moduli Theory, Northeastern University (Fall 2014), local organizer.

SELECTED CONFERENCES ATTENDED:

1. Workshop: Birational Geometry and Quantum Invariants, Simons Center, Stony Brook, October 30 - November 3, 2023.
2. The Combinatorics of Moduli Spaces, Fields Institute, Toronto, Canada, December 5 - 10, 2016.
3. Introductory Workshop on Combinatorial Algebraic Geometry, Fields Institute, Toronto, Canada, August 15 - 19, 2016.
4. Graduate Summer School on Combinatorial Algebraic Geometry, Fields Institute, Toronto, Canada, July 18 - 22, 2016.
5. "New methods in birational geometry", Toulouse, France, June 22 - 25, 2016.
6. Homological Mirror Geometry, Banff, Canada, from March 6th to March 11th 2016.
7. Algebraic Geometry Conference, Salt Lake City, UT (Summer 2015)
8. Algebraic Geometry Graduate Student Bootcamp, Salt Lake City, UT (Summer 2015)
9. Algebraic geometry Summer school and conference, Rio de Janeiro, Brazil (Summer 2015)
10. BC-Northeastern Algebraic Geometry Conference, Northeastern University, MA (Spring 2015)
11. Current developments in Moduli Theory, Northeastern University (Fall 2014)
12. Graduate Workshop on Geometry of Hilbert schemes, Stony Brook, NY (Fall 2013)
13. Hodge Theory and Classical Algebraic Geometry, OSU, Columbus, OH (Spring 2013)
14. Graduate Workshop on Moduli Spaces and Bridgeland Stability, UIC, Chicago, IL (Spring 2013)
15. AMS meeting, Special Session on Geometry of Moduli Spaces of Sheaves, University of Kansas, Lawrence, KA (Spring 2012)

SERVICE:

Refereeing activity for the following journals: Mathematische Nachrichten, IMRN, Journal of Algebra, Mathematische Zeitschrift.

17/01/2023