

Employment

- 2016 – present G.C. Evans Instructor, Rice University.
- 2015 – 2018 NSF Postdoctoral Fellow.
- 2014 – 2015 RTG Lovett Instructor, Rice University.

Education

- 2013 Doctoral Prize Fellow, Imperial College London.
- 2013 DPhil in Mathematics, University of Oxford, thesis advisor: Tom Bridgeland.
- 2009 Laurea Specialistica in Matematica, Università di Pisa, 110/110 con lode.
- 2008 Laurea Triennale in Matematica, Università di Pisa, 110/110 con lode.

Awards, Fellowships and Grants

- 2017 NSF DMS-1723842 (sole PI) \$15,000: Texas Algebraic Geometry Symposium.
- 2015 NSF DMS-1502916 \$150,000: Mathematical Sciences Postdoctoral Research Fellowship.
- 2014 AMS-Simons Travel Grant.
- 2013 EPSRC Doctoral Prize Fellowship.

Publications and Preprints

1. A proof of the Donaldson–Thomas crepant resolution conjecture, *preprint*. - with Sjoerd Beentjes, Jørgen Rennemo.
2. Gabriel’s theorem and birational geometry, *preprint*. - with Roberto Pirisi.
3. Relative, Singular, Twisted, Bondal–Orlov, *Math. Res. Lett.* (to appear).
4. A note on derived equivalences and birational geometry, *Bull. Lond. Math. Soc.* 49 (2017), no. 3, 499–504.
5. Chopping up derived categories, *written for the proceedings of the 2014 New Connections in Algebraic Geometry Workshop in Seattle*.
6. A remark on generators of $D(X)$ and flags, *Manuscripta Math.* 154 (2017), no. 1-2, 275278.
7. Derived equivalent CalabiYau 3-folds from cubic 4-folds, *Math. Ann.* 365 (2016), no. 1-2, 155-172. with Richard Thomas.
8. On the crepant resolution conjecture for Donaldson-Thomas invariants. *J. Algebraic Geom.* 25 (2016), no. 1, 1-18.
9. Donaldson-Thomas invariants and flops. *J. Reine Angew. Math.* 716 (2016), 103-145.
10. Moduli problems in abelian categories and the reconstruction theorem. *Algebr. Geom. (Foundation Compositio)* 2 (2015), no. 1, 1-18. with Michael Groechenig.

Theses

11. In the Hall of the flop king, *DPhil thesis*.
12. On a theorem of Beilinson, *Laurea Specialistica dissertation*.
13. Rivoltare la Sfera, *Laurea Triennale dissertation*.

Not meant to be published

14. Notes for MATH 355: Linear Algebra.
15. Notes for MATH 565: Lie Theory.
16. Sheaves4Knots.
17. Notes for MATH 566: Derived Categories.
18. The fourth homotopy group of the sphere.

19. Sheaves, covering spaces and monodromy.
20. Points and reconstructions.
21. Flops and DT invariants.
22. Introduction to derived categories.
23. The Atiyah-Guillemin-Sternberg theorem.

Teaching

The following were taught at Rice University.

- Spring 2018 MATH 490 - Reading Course with Patrick Girardet (Curve counting).
- Fall 2017 MATH 565 - Topics in Algebra: Lie Theory.
MATH 355 - Linear Algebra.
MATH 490 - Reading Course with Patrick Girardet (Scheme theory).
- Spring 2017 MATH 566 - Topics in Algebra II: Derived Categories.
MATH 212 - Multivariable Calculus.
- Fall 2014 MATH 565 - Introduction to Algebraic Geometry.
MATH 354 - Honors Linear Algebra.
- Spring 2014 MATH 382 - Complex Analysis.
MATH 390 - Undergraduate Colloquium.
- Fall 2017 Invited to *Baker College Best Professors Cocktail Party*.
Invited to *Will Rice College Favorite Professors Dinner*.

Learning Seminars

I have co-organized learning seminars for graduate students and faculty.

- Spring 2016 Étale fundamental groups, Rice University.
- Spring 2015 Algebraic Surfaces, Rice University.
- Fall 2012 Extended Topological Field Theory, Imperial College London.

Refereeing

Algebra & Number Theory, Communications in Number Theory and Physics, Compositio Mathematica, Duke Mathematical Journal, Geometry & Topology, Proceedings of the American Mathematical Society.

Mentoring

In 2016–2017 I held hour long weekly meetings with Stephen Wolff (now a student of Várilly-Alvarado), in preparation for their advanced exam. In 2017 I sat on the committee for Stephen Wolff's advanced exam.

Conferences

- Spring 2017 Organizer for the Texas Algebraic Geometry Symposium.

Service

- 2017–2018 Organizer for the Rice Math Colloquium, Rice University.
- 2016–2017 Coordinator for the Rice Current Math Seminar, Rice University.
- 2014–2015 Organizer for the Rice Algebraic Geometry and Number Theory seminar, Rice University.
- 2014–2015 Coordinator for the Rice Math Teaching Seminar, Rice University.
- Spring 2014 Organizer for the Rice Math Colloquium, Rice University.

Invited Conference Talks

- 2018.11.03 U Arkansas, AMS Sectional Meeting.
- 2016.11.08 IAS, Workshop on Homological Mirror Symmetry: Methods and Structures.
- 2016.04.02 UT Austin, Texas Algebraic Geometry Symposium.
- 2015.11.21 UNC Chapel Hill, New developments in moduli and GIT.
- 2015.10.24 Texas A&M, TAGS spin-off.
- 2014.10.25 USF, AMS Fall Western Section Meeting – Algebraic Geometry special session.
- 2014.08.07 U Washington, Seattle AG: new connections workshop.
- 2012.07.09 Warwick, Algebraic Geometry and Theoretical Physics workshop.
- 2011.03.31 Imperial College London, Geometry Day.

Invited Seminar Talks

- 2018.10.30 MIT, Algebraic Geometry Seminar.
- 2018.10.12 Columbia, Algebraic Geometry Seminar.
- 2018.09.26 U Arizona, Algebraic Geometry Seminar.
- 2018.12.25 Syracuse, Colloquium.
- 2018.01.23 Lehigh, Colloquium.
- 2018.01.22 Notre Dame, Colloquium.
- 2018.01.12 Michigan State, Colloquium.
- 2017.12.15 UW Madison, Algebraic Geometry Seminar.
- 2017.12.11 UNC Chapel Hill, Colloquium.
- 2017.12.06 UT Austin, Geometry Seminar.
- 2017.11.15 UC Davis, Algebraic Geometry Seminar.
- 2017.11.03 Texas A&M, Geometry Seminar.
- 2017.04.02 UBC, Algebraic Geometry Seminar.
- 2016.12.05 UIUC, Algebraic Geometry Seminar.
- 2016.04.20 UIC, Algebraic Geometry Seminar.
- 2016.04.06 University of Houston, Complex Geometry Seminar.
- 2016.03.15 UPenn, Math & Physics joint Seminar.
- 2016.02.11 Northeastern, Geometry, Physics and Representation Theory Seminar.
- 2015.11.16 Texas A&M, Geometry Seminar.
- 2015.09.25 Brown, Algebraic Geometry seminar.
- 2015.04.15 Duke, Algebraic Geometry seminar.
- 2015.03.30 University of Michigan, Geometry and Physics seminar.
- 2015.02.02 Caltech, Algebraic Geometry seminar.
- 2014.02.13 Colorado State, FRAGMENT seminar.
- 2013.03.20 Rice, Algebraic Geometry seminar.
- 2012.11.26 UBC, Algebraic Geometry seminar.

Other Talks

- 2017.09.05 Rice, Algebraic Geometry and Number Theory Seminar.
- 2017.03.03 Rice, Topology RTG Seminar.
- 2016.05.24 USC, K-theory Summer School.
- 2016.01.29 Rice, Learning Seminar: Étale Fundamental Groups.
- 2016.01.26 Rice, Algebraic Geometry and Number Theory Seminar.
- 2015.10.05 Rice, Learning Seminar: Algebraic Groups.
- 2015.03.24 Rice, Algebraic Geometry Seminar.
- 2015.01.29 Rice, Learning Seminar: Algebraic Surfaces.
- 2014.09.09 Rice, Learning Seminar: Representation Theory.
- 2014.06.09 Rice, Working Seminar on Bridgeland Stability Conditions.
- 2014.04.21 Rice, Learning Seminar: Intersection Theory.
- 2014.03.11 Rice, Algebraic Geometry Seminar.
- 2013.12.04 Imperial College London, Junior Geometry Seminar.
- 2012.11.23 Imperial College London, TFT Study Group.
- 2012.10.19 Imperial College London, TFT Study Group.
- 2012.07.30 Imperial College London, MAGIC Seminar.
- 2011.11.24 Oxford, Junior Geometry and Topology Seminar.
- 2011.06.03 Oxford, Junior Geometry and Topology Seminar.
- 2011.02.16 Imperial College London, Junior Geometry Seminar.
- 2010.02.05 Imperial College London, Junior Geometry Seminar.
- 2009.10.22 Imperial College London, Junior Geometry Seminar.
- 2009.03.23 Imperial College London, Junior Geometry Seminar.
- 2008.12.03 Università di Pisa, Seminario di Normali Studenti.