

Giulia Saccà, curriculum vitae

Columbia University
Mathematics Department
2990 Broadway
New York, NY 10027

Email: gs3032@columbia.edu
Homepage: <http://math.columbia.edu/~giulia/>

Research Interests: Algebraic geometry (hyper-Kähler and Calabi-Yau manifolds, K3 surfaces, cubic hypersurfaces, moduli spaces and derived categories, symplectic singularities, lagrangian fibrations)

Positions

2018–present	Assistant Professor, Columbia University
2019–2020	MCFA, Collège de France
2017–2018	Assistant Professor, MIT
2014–2015	Member, School of Mathematics, Institute for Advanced Study (IAS), Princeton
2013–2017	James H. Simons Instructor, Stony Brook University

Honors, awards, grants

July 2022–June 2027	NSF <i>DMS-2144483 CAREER</i> : Compact Hyper-Kähler manifolds and Lagrangian fibrations
July 2021–June 2024	NSF <i>DMS-2052750 FRG: Collaborative Research</i> : Derived Categories, Moduli Spaces, and Classical Algebraic Geometry
June 2018–June 2021	NSF <i>DMS-1801818 & 1949812</i> Hyper-Kähler Geometry via Lagrangian Fibrations and Symplectic Resolutions
November 2017	<i>Anna Maria Molteni Award for Mathematics and Physics</i> , Italian Scientist and Scholars of North America Foundation (ISSNAF)
January 2015	<i>Federigo Enriques prize 2014</i> , Unione Matematica Italiana (UMI)

Education

Princeton University	PhD. Mathematics, 2008–2013 Advisor: Gang Tian; Thesis: <i>Fibrations in abelian varieties associated to Enriques surfaces</i>
Università di Roma, La Sapienza	M.S. in Mathematics, 2006–2008 B.S. in Mathematics, 2003–2006

2008–2013	<i>Centennial Fellowship</i> , Princeton University
Spring 2008	<i>Master 2 fellowship</i> , Fondation Sciences Mathématiques de Paris
September 2006	<i>First prize national competition</i> , Istituto Nazionale di Alta Matematica (INdAM)

Publications and preprints

1. G. Ancona, M. Cavicchi, R. Laterveer, and G. Saccà, *Relative and absolute Lefschetz standard conjectures for some Lagrangian fibrations*, submitted
 2. G. Saccà, *Non-primitive moduli spaces of Bridgeland semistable objects in residual K_3 categories*, submitted
 3. G. Saccà (with an Appendix by C. Voisin), *Birational geometry of the Intermediate Jacobian fibration*, to appear **Geom. Topology**
 4. L. Flapan, E. Macri, K. O’Grady, and G. Saccà, *The geometry of antisymplectic involutions I*, **Math. Z.** 300 (2022), no. 4, 3457–3495. 2021 <https://rdcu.be/cBb0E>
 5. M. de Cataldo, A. Rapagnetta, and G. Saccà, *The Hodge numbers of O’Grady 10 via Ngô Strings*, **J. Math. Pures et Appl.** (9) Vol 156, 2021, 125–178, https://authors.elsevier.com/a/1d%7E9E_VifMBko
 6. K. Hulek, R. Laza, and G. Saccà, *A note on the Euler number of OG_{10}* , Proceedings of the ICM 2018 Satellite conference, **Mat. Contemp.** 47 (2020), 151–170.
 7. J. Kollár, R. Laza, G. Saccà, and C. Voisin, *Remarks on degenerations of hyper-Kähler manifolds*, **Ann. Inst. Fourier** 68 (2018), no. 7, 2837–2882
 8. G. Mongardi, A. Rapagnetta, and G. Saccà, *The Hodge diamond of O’Grady’s 6-dimensional example*, **Compos. Math.** 154 (2018), no. 5, 984–1013
 9. R. Laza, G. Saccà, and C. Voisin, *A hyper-Kähler compactification of the Intermediate Jacobian fibration associated to a cubic fourfold*, **Acta Mathematica**, 218:1 (2017), 55–135
 10. E. Arbarello, A. Bruno, G. Farkas, and G. Saccà, *Explicit Brill-Noether-Petri general curves*, **Comment. Math. Helv.** 91 (2016), no. 3, 477–491
 11. E. Arbarello and G. Saccà, *Singularities of moduli spaces of sheaves on K_3 surfaces and Nakajima quiver varieties*, **Adv. Math.** 329 (2018), 649–703.
 12. G. Saccà, *Relative compactified Jacobians of linear systems on Enriques surfaces*, 48 pages. **Trans. Amer. Math. Soc.** 371 (2019), no. 11, 7791–7843
 13. E. Arbarello, G. Saccà and A. Ferretti, *Relative Prym varieties associated to the double cover of Enriques surfaces*, **J. Differential Geom.** 100 (2015), no. 2, p. 191–250.
-

Invited Lectures**Selected invitations**

1. *Invited Address*, AMS 2022 Fall Southeastern Sectional Meeting, University of Tennessee at Chattanooga, Chattanooga, October 2022
2. *CV60*, A conference in honor of C. Voisin's 60th birthday, Paris, May 2022
3. *Recent Advances in Classical Algebraic Geometry*, ICM Satellite conference, Kraków, Poland June 28- July 2, 2022
4. *XXI Congresso UMI*, Pavia, 2-7 Settembre 2019
5. *ICM Satellite conference "Moduli Spaces in Algebraic Geometry and Applications"*, Campinas, Brazil, July 26-31 2018
6. *Fourth Duke Mathematical Journal Conference*, Duke University, Durham, NC, April 26-29 2018
7. *Géométrie algébrique*, Collège de France, Paris, Oct 3-5 2016
8. *Satellite conference of 7ECM, Algebraic Geometry*, Leibniz Universität, Hannover, July 13-16 2016

Colloquium talks

1. Stony Brook University, Stony Brook, April 2022;
2. University of Georgia, Athens, November 2021 *online*;
3. University College London (UCL), London, March 2021 *online*;
4. Geometria em Lisboa, Lisbon, March 2021 *online*;
5. Columbia University, January 2018;
6. Scuola Internazionale Superiore di Studi Avanzati (SISSA), Trieste, June 2017;
7. Johannes Gutenberg-Universität, Mainz, June 2017;
8. University of Duke, Durham, Feb 2017;
9. University of California, San Diego, Jan 2017;
10. University of Massachusetts, Amherst, Jan 2017;
11. Bonn Universität, Bonn, Dec 2016;
12. Boston College, Boston, Dec 2016;
13. Purdue University, West Lafayette, Dec 2016;
14. Rice University, Houston, Nov 2016;
15. University of Illinois, Chicago, Nov 2016;
16. University of Utah, Salt Lake City, Nov 2016;
17. University of Stony Brook, Stony Brook, Nov 2016;
18. University of Boulder, Colorado, April 2016

Conferences and workshops

1. *Winter Meeting in Algebra and Geometry*, Rome, December 2022;
2. *Hyperkähler varieties and related topics*, Rome, September 2022;
3. *New Perspectives on Hyperkähler Manifolds - A Celebration of Dimitri Markushevich's (60+2)nd Birthday*, Trento, June 2022 (*online*);
4. *Hodge Theory and Related Topics*, Miami, April 2022 (*online*);
5. *Classical Algebraic Geometry*, Oberwolfach, June 2021;
6. *Hodge theory and moduli*, Mathematical Sciences of the Americas (IMSA), University of Miami, Miami, February 2021;
7. AMS special session *Geometry and Arithmetic of Algebraic Varieties*, Penn State, October 2020 *online*;
8. *HyperK* Inaugural virtual workshop, Sept 2020;
9. Simons conference *birational geometry*, Simons Foundation, New York, July 2020 *online*;
10. Simons collaboration on *Special Holonomy*, London, June 2020 *online*;
11. *Algebraic Geometry - Torino 2020*, Turin, February 2020;
12. Basel–Freiburg–Nancy–Saarbrücken–Strasbourg joint seminar in *Algebraic and Complex Geometry*, Strasbourg, October 2019;
13. *Japanese European Symposium on symplectic varieties and moduli spaces*, ETH, Zürich, June 2019;
14. *Workshop: Graduate*

Summer School on the Mathematics and Physics of Hitchin Systems Simons Center for Geometry and Physics (SCGP), May 2019; 15. *The 26th SCGAS Southern California Geometric Analysis Seminar*, University of California, San Diego January 26-27, 2019; 16. *BIRS Workshop on Moduli Spaces: Birational Geometry and Wall Crossings*, Banff, Canada, October 2018; 17. *Texas Algebraic Geometry Symposium 2018*, Texas AM, April 2018; 18. *Workshop on Algebraic Varieties, Hodge Theory and Motives*, Fields Institute, Toronto, March 2018; 19. *Algebraic Geometry Conference, Beauville's 70th*, Morningside Center of Mathematics (MCM), Beijing, October 2017; 20. *Second Japanese-European Symposium on Symplectic Varieties and Moduli Spaces*, Levico Terme, Italy, September 2017; 21. *Hodge Theory, Moduli and Representation Theory*, SCGP, Stony Brook, August 2017; 22. *WAGS, Western Algebraic Geometry Seminar*, University of British Columbia, Vancouver, April 2017; 23. *GAGS, The Georgia Algebraic Geometry Symposium*, University of Georgia, Athens, March 2017; 24. *BC-Northeastern Algebraic Geometry Conference*, Boston College, Oct 15 2016; 25. *Derived categories and Chow groups of hyperkaehler and Calabi–Yau varieties*, SCGP, Stony Brook, Sept 19–23 2016; 26. *Higher Dimensional Algebraic Geometry*, University of Utah, Salt Lake City, July 18-26 2016; 27. *Algebraic cycles and moduli*, Centre de Recherche Mathématique (CRM), Montreal, June 2-8 2016; 28. *Algebraic Geometry and Representation Theory in Rome*, Università di Roma La Sapienza, December 2015; 29. *Workshop of Algebraic Geometry*, Seminario di Natale, Università degli Studi di Milano, December 2015; 30. *Southern California Algebraic Geometry Seminar*, UCLA, December 2015; 31. *Singular curves on K_3 surfaces and hyperkähler manifolds*, Oberwolfach (miniworkshop), November 2015; 32. *Recent developments in Moduli theory and GIT*, University of North Carolina at Chapel Hill, November 2015; 33. *Algebraic Geometry*, Oberwolfach, March 2015; 34. *AGNES, Algebraic Geometry Northeastern Seminar*, University of Pennsylvania, Philadelphia, October 2014; 35. *Ateliers Franco-Chinois on stability theory*, Institut Fourier, Grenoble, June 2014; 36. *Giornate di Geometria Algebrica ed Argomenti Correlati XII*, Politecnico di Torino, June 2014; 37. *Hodge Theory in String Theory*, Fields Institute, Toronto, November 2013; 38. *Geometry of Algebraic Varieties*, Special Session at AMS Sectional meeting, Temple University, Philadelphia, October 2013; 39. *Advances in hyperkähler and holomorphic symplectic geometry*, BIRS, Banff, Canada, March 2012

Seminar talks

1. Stony Brook Algebraic Geometry Seminar, April 2022; 2. Utah Algebraic Geometry Seminar, February 2022; 3. Columbia Algebraic Geometry Seminar, October 2021; 4. Princeton Algebraic Geometry Seminar, October 2021; 5. ZAG seminar, Sep 2021; 6. Algebraic Geometry Seminar, UC Davis, Apr 2021; 7. Algebraic Geometry Seminar, Pavia, Apr 2021; 8. Michigan Algebraic Geometry Seminar, Feb 2021 *online*; 9. *Seminaire de Géométrie Algébrique*, Strasbourg, Feb 2021 *online*; 10. *Leicester Algebra and Geometry Open ONLINE (LAGOON) Seminar*, Isaac Newton Institute for Mathematical Sciences, Dec 2020 *online*; 11. *Seminario di Geometria Algebrica*, Pisa, Nov 2020 *online*; 12. *Algebraic Geometry and Number Theory seminar*, Hebrew University-Ben Gurion (HUJI-BGU AGNT) University, April 2020, *online*; 13. University of Edinburgh, Edinburgh, Scotland, February 2020; 14. Università degli Studi di Milano, Milan, Italy, February 2020; 15. Yale, New Haven, December 2019; 16. SAGA, Université Paris Sud, Orsay, France, November 2019; 17. École Normale Supérieure, Paris, Sept 2019 (two talks); 18. Bonn Universität, Bonn, July 2019; 19. Università di Roma, Sapienza, June 2019; 20. Courant Institute, NYU, Algebraic Geometry Seminar, April 2019; 21. Northwestern University, Algebraic Geometry Seminar, March 2019; 22. UIC, Algebraic Geometry Seminar, February 2019;

23. Columbia Algebraic Geometry seminar, December 2017; 24. Harvard–MIT Algebraic Geometry seminar, September 2017; 25. University of Maryland, College Park, April 2017; 26. Stanford University, Palo Alto, December 2016; 27. University of Utah, Salt Lake City, November 2016; 28. Pennsylvania State University, State College, November 2016; 29. University of Michigan, Ann Arbor, November 2016; 30. University of Illinois in Chicago, November 2016; 31. Rice University, Houston, October 2016; 32. Duke University, Durham, September 2016; 33. Stony Brook University, Stony Brook, September 2016; 34. Northeastern University, Boston, April 2016; 35. Colorado State University, Fort Collins, April 2016; 36. John Hopkins, Baltimore, March 2016; 37. Yale University, New Haven, February 2016; 38. Università di Bologna, Bologna, January 2016; 39. Stony Brook University, December 2015; 40. Ecole Normal Supérieur, Paris, November 2015; 41. Contributed talk, parallel session, AMS Summer Institute in Algebraic Geometry, Salt Lake City, July 2015; 42. University of Maryland, May 2015; 43. Harvard–MIT Algebraic Geometry seminar, April 2015; 44. Symplectic Geometry seminar, IAS, Princeton, January 2015; 45. Università di Trento, January 2015; 46. University of Southern California, November 2014; 47. IAS, Princeton, October 2014; 48. Università di Pisa, June 2014; 49. Università di Roma La Sapienza, June 2014; 50. UIC, Chicago, April 2014; 51. University of Massachusetts, Amherst, April 2014; 52. Johannes Gutenberg Universität, Mainz, January 2014; 53. University of Utah, December 2013; 54. Stony Brook University, September 2013; 55. Columbia University, April 2013; 56. Ohio State University, January 2013; 57. Harvard–MIT Algebraic Geometry seminar, December 2012; 58. Institut de Mathématique de Jussieu, Paris, October 2012

Graduate Schools and mini-courses

1. Graduate mini-course *Lagrangian fibrations and the minimal model program*, Università di Bologna, Bologna, November 2022
 2. Mini-course *Moduli spaces and wall-crossings*, Summer School on Bridgeland Stability Conditions, Trento, June 2022
 3. GAeL summer school *Introduction to hyper-Kähler manifolds*, Paris May 2022
 4. *Hyper-Kähler manifolds and Lagrangian fibrations* Algebra and Number Theory Day, University of Maryland, April 2022
 5. HyperK workshop *Lagrangian fibrations*, Bonn, Sept 2021
 6. *Rational curves on compact Hyper-Kähler manifolds*, Informal Mathematical Physics Seminar, Columbia University, Nov-Dec 2020 *online*
 7. Graduate mini-course *Hilbert scheme of points on surfaces*, MIT, Spring 2018
 8. Minicourse on K -stability, Bootcamp of the AMS Summer Institute, SLC, July 2015
 9. Minicourse *Hilbert schemes and hyper-Kähler Manifolds*, graduate student workshop *Geometry of Hilbert schemes*, Simons Center for Geometry and Physics (SCGP), Stony Brook, November 2013
-

Teaching

Columbia University: • Intro to Higher Mathematics, Spring 2022; • Topics in Algebraic Geometry (Moduli spaces and hyper-Kähler manifolds), Fall 2021; • Arithmetic and Algebraic Geometry, Spring 2021 (online); • Linear Algebra, Fall 2018 and Fall 2020 (online); • Calculus III, Spring 2019

MIT: • Algebraic Geometry I, Fall 2017; • Algebraic Geometry II, Spring 2018

Stony Brook University: • MAT 614, Topics in Algebraic Geometry: *Moduli Spaces of Sheaves*, Fall 2016; • MAT 312 / AMS 351 (Applied Algebra), Spring 2016, Spring 2017; • MAT 125 (Calculus), Spring 2016; • MAT 126 (Calculus), Spring 2014; • MAT 123 (pre-Calculus), Fall 2013, Fall 2015

Princeton University: • Linear Algebra, Spring 2012

Students (current or recent)

1. Advisor of Nicholas Vilches Reyes and of Anna Abasheva
 2. Senior Thesis advisor of Anda Tenie (undergraduate) 2021-2022, now graduate student at Harvard
 3. Qualifying Examination of Patrick Lei (March 2022)
 4. Examiner for Thesis Defense of Raymond Cheng (March 2022)
 5. Examiner for Thesis Defense of Yoon-Joo Kim (April 2022)
 6. Summer project with Anda Tenie, Summer 2021
 7. Reading course *Algebraic Curves* with Tasman Fell, Spring 2021
-

Service (current or recent)

1. Editor for *Annali Matematica Pura e Applicata*
2. Editor for Special PAMQ volume in honor of E. Arbarello
3. Co-organizer of the AMS special session Geometry and Arithmetic of Hyper-Kähler manifolds, Fall Southeastern Sectional Meeting, University of Tennessee at Chattanooga Oct 2022
4. Co-organizer of the Oberwolfach Workshops *Algebraic Geometry: Wall Crossing and Moduli Spaces, Varieties and Derived Categories*
5. Department Graduate Admissions Committee, 2020-2021
6. Department Diversity Committee (member)

7. Co-organizer of activities within the FRG Collaborative Research NSF grant *Derived Categories, Moduli Spaces, and Classical Algebraic Geometry*
8. Co-organizer of the Columbia Algebraic Geometry Seminar (2020–present)
9. Co-organizer and host for Zoom Algebraic Geometry Seminar (ZAG) 2020–2022
10. Co-organizer of the AMS special session Geometry and Arithmetic of Hyper-Kähler manifolds, Fall Southeastern Virtual Sectional Meeting, Nov 2020
11. Co-leader (with C. Camere) of the group “Irreducible symplectic varieties and relative Prym varieties” (Regular group meetings with 3 post-docs and 1 graduate student as a follow-up to the activities of the Women In Algebraic Geometry workshop at ICERM)
12. Referee and short opinion for several mathematical journals
13. NSF Panelist for regular grant (2019 and 2022)

Service (past)

- Group leader, Women in Algebraic Geometry Workshop, Institute for Computational and Experimental Research in Mathematics (ICERM), Providence, July 2020 *online*
- Thesis committee for Qixao Ma, April 2019
- Qualifying exam for Araminta Gwynne (with M. Hopkins and R. Melrose), MIT, May 2018
- Thesis reader and committee member for the thesis defense of David Stapleton (with E. Arbarello, S. Grushevsky, and R. Lazarsfeld), April 2017
- Oral examination committee for Michael Albanese (with C. Le Brun and B. Lawson), October 2015
- TA for mini-course *Birational invariants* (by C. Voisin), Women and mathematics, Institute for Advance Study, IAS, Princeton, June 2015
- co-organizer of several activities in the special program *Topology of Algebraic Varieties*, Institute for Advance Study, IAS, Princeton, 2014–2015
- co-organizer of activities (two mini-courses and one workshop) for the program *Brill–Noether theory in the study of hyper-Kähler and Calabi–Yau manifolds*, Junior program in Algebraic geometry, Hausdorff Research Institute for Mathematics (HIM), Bonn, Spring 2014
- Master Thesis Committee for Enrica Floris, student of Andreas Høring, Insitut de Mathématique de Jussieu, 2010