

Angela GIBNEY

Curriculum Vitæ

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Education

2000 Ph.D. University of Texas, Austin (advisor Sean Keel)
1994 B.S mathematics University of California, Santa Barbara
1993-94 Mathematics Research Institute, The Netherlands (study abroad)
1992 Budapest Semesters in Mathematics (study abroad)

Employment

2017-	Professor	Rutgers University
2017 -2017	Professor	University of Georgia
2013 - 2017	Associate Professor	University of Georgia
2009-2013	Assistant Professor	University of Georgia
2004-08	Assistant Professor	University of Pennsylvania
2003-04	Gibbs Assistant Professor	Yale University
2000-03	VIGRE Assistant Professor	University of Michigan

Research Interests

Algebraic geometry and representation theory: Moduli of curves and generalizations; vector bundles on curves and their moduli; conformal vertex algebras, conformal field theory.

Individual Research Grants: Principal Investigator

2019-22 National Science Foundation Grant DMS-1902237
Generalized Verlinde bundles on the moduli space of curves

2016-19 National Science Foundation Grant DMS-1601909
Vector bundles of conformal blocks on $\overline{\mathcal{M}}_{g,n}$

2012-16 National Science Foundation Grant DMS-1201268
Conformal blocks and positive cycles on the moduli space of curves

2005-09 National Science Foundation Grant DMS-0509319
The birational geometry of the moduli spaces of curves

Publications and Preprints

- *Vertex algebras of CohFT-type*
(with C. Damiolini, and N. Tarasca), accepted for publication in the Facets of Algebraic Geometry volume for William Fulton, on the occasion of his 80th birthday.
<https://arxiv.org/abs/1910.01658>
- *On factorization and vector bundles of conformal blocks from vertex algebras*
(with C. Damiolini, and N. Tarasca), submitted
<https://arxiv.org/abs/1909.04683v2>
- *Conformal blocks from vertex algebras and their connections on $\overline{\mathcal{M}}_{g,n}$*
(with C. Damiolini, and N. Tarasca), submitted
<https://arxiv.org/abs/1901.06981>
- *Basepoint free cycles on $\overline{\mathcal{M}}_{0,n}$ from Gromov–Witten theory*
(with P. Belkale), IMRN, Sept 2019
<https://doi.org/10.1093/imrn/rnz184> [metrics](#)
- *On higher Chern classes of vector bundles of conformal blocks*
(with S. Mukhopadhyay)
<https://arxiv.org/abs/1609.04887>
- *On finite generation of the section ring of the determinant of cohomology line bundle*
(with P. Belkale), Transactions of the AMS, Dec 2018
<https://www.ams.org/journals/tran/0000-000-00/S0002-9947-2018-07564-X/>
- *Scaling of conformal blocks and generalized theta functions over $\overline{\mathcal{M}}_{g,n}$*
(with P. Belkale and A. Kazanova), Mathematische Zeitschrift, 1–27, 2016;
<http://link.springer.com/article/10.1007/s00209-016-1682-1>
- *Nonvanishing of conformal blocks divisors on $\overline{\mathcal{M}}_{0,n}$*
(with P. Belkale and S. Mukhopadhyay),
Transformation Groups, Volume 21, Issue 2, 329–353, 2016
<https://link.springer.com/article/10.1007/s00031-015-9357-2>
- *Vanishing and identities of conformal blocks divisors on $\overline{\mathcal{M}}_{0,n}$*
(with P. Belkale and S. Mukhopadhyay),
Algebraic Geometry, Volume 2, Issue 1, 62–90, 2015
<https://algebraicgeometry.nl/Content/6.html>
- *Higher level conformal blocks divisors on $\overline{\mathcal{M}}_{0,n}$*
(with V. Alexeev and D. Swinarski)
Proc. Edinb. Math. Soc. (2), Volume 57, Number 1, 7–30, 2014
<https://doi.org/10.1017/S0013091513000941> [metrics](#)

- *Veronese quotient models of $\overline{M}_{0,n}$ and conformal blocks*
(with D. Jensen, H-B. Moon, and D. Swinarski)
Michigan Math. J. Volume 62, Number 4, 721– 751, 2013
<https://projecteuclid.org/euclid.mmj/1387226162>
- *Conformal blocks divisors and the birational geometry of $\overline{M}_{g,n}$*
Oberwolfach Reports, Moduli Spaces in Algebraic Geometry, 2013
https://www.mfo.de/document/1306b/OWR_2013_06.pdf
- *sl_n level 1 conformal blocks divisors on $\overline{M}_{0,n}$*
(with D. Swinarski, J. Stankewicz and M. Arap)
Int. Math. Res. Not., Number 7, 1634–1680, 2012
<https://academic.oup.com/imrn/article-abstract/2012/7/1634/757371>
- *Lower and upper bounds for nef cones*
(with D. Maclagan)
Int. Math. Res. Not., Number 14, 3224–3255, 2012
<https://doi.org/10.1093/imrn/rnr121>
- *The cone of type A, level one conformal blocks divisors,*
(with N. Giansiracusa)
Adv. Math. Volume 231, Number 2, 798–814, 2012
<https://doi.org/10.1016/j.aim.2012.05.017>
- *On extensions of the Torelli map*
Geometry and arithmetic, EMS Ser. Congr. Rep., Eur. Math. Soc., Zrich, 2012
<http://bit.ly/32dQ2iI>
- *Equations for Chow and Hilbert Quotients*
(with D. Maclagan),
Algebra and Number Theory, Volume 4, Number 7, 855–885, 2010
<https://msp.org/ant/2010/4-7/p03.xhtml>
- *Numerical criteria for a divisor in $\overline{\mathcal{M}}_g$ to be ample,*
Compos. Math., Volume 145, Number 5, 1227–1248, 2009; <https://doi.org/10.1112/S0010437X09004047> **metrics**
- *Pointed trees of projective spaces,*
(with L. Chen and D. Krashen)
J. Algebraic Geom., Volume 18 , Number 3, 477–509, 2008
<https://doi.org/10.1090/S1056-3911-08-00494-3>
- *Mori cones of moduli spaces of curves of small genus,*
(with G. Farkas)
Trans Amer Math Soc, Volume 355, Number 3, 1183–1199, 2003 <https://doi.org/10.1090/S0002-9947-02-03165-3>

- *Towards the ample cone of $\overline{\mathcal{M}}_{g,n}$* ,
(with S. Keel, and I. Morrison)
J. Amer Math Soc, Volume 15, Number 2, 273–294, 2002
<https://doi.org/10.1090/S0894-0347-01-00384-8>

Publications and Preprints: Editorial

- *Introducing the Early Career Section*
(associate editor, with editor Erica Flapan)
Notices of the American Math. Soc., Jan 2018
<https://www.ams.org/journals/notices/201901/rnoti-p28.pdf>
- *Surveys on Recent Developments in Algebraic Geometry*
(editor, with I. Coskun, T. de Fernex, and M. Lieblich),
Proc of Symposia in Pure Mathematics, American Math. Soc., Jul 2017
<https://bookstore.ams.org/pspum-95/>
- *Proceedings of the 2010 conference at the University of Georgia, Athens*,
(editor, with V. Alexeev, E. Izadi, E. Looijenga, J. Kollár)
Contemporary Mathematics, American Math. Soc., Volume: 564, 2011
<https://www.ams.org/books/conm/564/>

Other Funding

- 2019–23 National Science Foundation Grant DMS–1937370
AGNES: Algebraic Geometry North East Sectional;
- 2014–19 National Science Foundation Grant DMS–1344994
Algebraic Geometry, Algebra, and Number Theory RTG Grant;
https://www.nsf.gov/awardsearch/showAward?AWD_ID=1344994
- 2015–18 National Science Foundation Grant DMS–1522813
The Georgia Algebraic Geometry Symposium;
- 2015 National Science Foundation Grant DMS – 1500652
Bootcamp for the 2015 Algebraic Geometry Summer Research Institute;
- 2015 National Security Agency – 141006
Bootcamp for the 2015 Algebraic Geometry Summer Research Institute;
- 2011–15 National Science Foundation Grant DMS–1139200
The Georgia Algebraic Geometry Symposium;
- 2010 National Science Foundation Grant DMS–1028536
Compact Moduli and Vector Bundles Conference;
- 2010–15 National Science Foundation VIGRE Grant DMS–0738586;

Other Honors and Awards

- 2000 Clay Mathematics Institute, Liftoff Fellow
- 2000 American Association of University Women, Dissertation Fellowship, offered
- 2001 Outstanding Doctoral Dissertation Award, University of Texas at Austin
- 2006 Teaching Award, University of Pennsylvania

Community service

- 2019- Associate Editor of the AMS Notices, Early Career Section
math.AG moderator for the arxiv
- 2004-18 Refereed for various journals, and served funding panels for NSF
- 2014-15 Member of the Mathematics Research Communities Advisory Board

Activities Benefitting Women and Girls in Mathematics

- 2020 group leader, ICERM Women in AG workshop July, 2020 (expected)
- 2019 Speaker, Workshop On Math Advice and Networking at the UPenn
STEM panelist, High-school Girls Career Pathways Conference, S. Brunswick, NJ
- 2018 speaker, Strength In Numbers, workshop, Queen's Univ., CA
speaker, Grad workshop in Algebraic Geometry
for Women & Mathematicians of Minority Genders
Harvard/MIT, February 17-18
- 2017 FEW Grant visit and talks at the University of Pennsylvania
September 13-15, 2017
EDGE (Enhancing Diversity in Graduate Education), mentor
- 2010-16 Co-Organizer AWM events at UGA
- 2015 AWM Research Symposium, Algebraic Geometry Special Session
(Co-Organizer with Linda Chen), University of Maryland
- 2009 Connections for Women Conference, MSRI
(Co-Organizer, with Diane Maclagan)
- 2007 IAS Women's program, Women in Science Seminar Speaker, Princeton, NJ
- 2005 EDGE (Enhancing Diversity in Graduate Education), Follow Up Mentor
Helped with *Algebraic Geometry, Symplectic Geometry and Theoretical Physics:*
- 2004-08 Co-Organizer (with A. Grassi) of AWM events at UPenn
- 2002 Expanding Your Horizons in Science and Engineering, presenter

Service as a Postdoctoral Advisor

- 2018 Chiara Damiolini, Research advisor
- 2017-19 Nicola Tarasca, research advisor
- 2016-17 Anand Deopokur, research co-advisor with V. Alexeev
Michael Schuster, research advisor
- 2015-16 Julian Rosen, teaching advisor
- 2013-16 Anna Kazanova, Research Advisor
- 2012-15 Amber Russell, teaching advisor
- 2011-13 Han-Bom Moon, Research Advisor
- 2008-11 David Swinarski, Research Co-Advisor with V. Alexeev

Service as a Conference Co-Organizer

- 2018 Algebraic Geometry Northeast Sectional, AGNES
(with L. Borisov, A. Buch, and D. Krashen)
- 2017 The Georgia Algebraic Geometry Symposium
(with V. Alexeev, B. Bakker, D. Krashen, and D. Lorenzini)
- 2016 Combinatorial Moduli Spaces and Intersection Theory, The Fields Institute
(with D. Abramovich, I. Coskun, G. Smith, and M. Stillman)
- The Georgia Summer Workshop in Algebraic Geometry at UGA
(with A. Deopurkar, J. Kass, and N. Tarasca)
- 2015 The graduate student 'Bootcamp' for the Algebraic Geometry Institute
Salt Lake City, Utah, (with I. Coskun, T. DeFernex, and M. Lieblich)
- AWM Research Symposium, Special Session in Algebraic Geometry, UM
(with L. Chen)
- 2014 The Georgia Algebraic Geometry Symposium
(with V. Alexeev, N. Giansiracusa, and D. Krashen)
- 2013 The Georgia Algebraic Geometry Symposium
(with V. Alexeev, E. Izadi, and D. Krashen)
- 2012 VIGRE Summer School and Georgia Algebraic Geometry Symposium
(with V. Alexeev and E. Izadi, and D. Krashen)
- 2010 Mathematical Research Communities Workshop, Snowbird, Utah
(with D. Abramovich, I. Coskun, J. McKernan and T. deFernex)
- The Compact Moduli and Vector Bundles Conference at UGA
(with V. Alexeev and E. Izadi)
- 2009 The Connections for Women Workshop at MSRI
(with D. Maclagan and J. Sidman)
- 2007 Combinatorial Algebraic Geometry, (AMS meeting, Hoboken, NJ)
(with D. Maclagan)
- 2002 Curves and their Moduli, (AMS meeting, Ann Arbor, MI)
(with G. Farkas and R. Lazarsfeld)

Other Activities Promoting Graduate Education

- 2016 RTG Summer Coordinator for the RTG grant
Academic Year Coordinator for the RTG grant
- 2015 'Bootcamp' for the Algebraic Geometry Institute, Salt Lake City, Utah
(Co-Organizer with I. Coskun, T. DeFernex, and M. Lieblich)
Graduate Student Mock AMS Conference, UGA
- 2012 Algebraic Geometry Summer School at UGA (with V. Alexeev and D. Krashen)
- 2010 - 14 VIGRE Summer Program Coordinator
Graduate Student Mock AMS Conference, UGA
- 2010-11 M.A.T.H. Students program,
2010 Organized lunch and talk for students by David Saltman, director IDA
Topic: Nonacademic Math Jobs in the Defense Industry
- 2009 Connections for Women, Co-Organizer, with Diane Maclagan, MSRI
- 2007 Institute for Advanced Study, Women's program, Princeton, NJ
- 2005 mentor, 'Bootcamp', Summer Institute in Algebraic Geometry
- 2004 AMS Presentations By Young Researchers Conference,
MRC Program, ed working group on moduli spaces, Snowbird, Utah
- 2002 Learning Stacks and Computational Methods through Problem Solving,
University of Illinois at Urbana Champagne
- 1998-00 started and ran Junior Geometry At UT Austin (with D. Krashen)
still running: <https://www.ma.utexas.edu/research/seminars.php>

Service on a graduate thesis committee

- 2017 Luca Schaffler, University of Georgia
- 2015 Xiayan Hu, PhD, University of Georgia
- 2011-17 Natalie Hobson, PhD, (PhD Advisor), University of Georgia
- 2011 Noah Giansiracusa, PhD, Brown University
- 2010-13 Gulden Cinar, Masters Degree, (Advisor), University of Georgia
- 2010 Paul Larsen, PhD, Humboldt University, Berlin
- 2008 David Swinarski, PhD, Columbia University
- 2005 Damiano Testa, PhD, MIT

Other Advising (since 2012)

- 2015-16 Academic Advisor for undergraduate students
K. Boe, K. A. Hoyt, E. Quinche, and N. Mendrano
- 2014-15 Academic Advisor for under-graduate student Noemy Mendrano
- 2013-14 Preliminary Academic Advisor for graduate student Daniel McKenzie
- 2012-13 Academic Advisor for undergraduate students
M. Edwards, E. T. LaPaquette, and A. McMillan
Teaching mentor to Jacob Hicks

Activities Promoting Undergraduate Education (since 2010)

- 2014, 16 UGA MathCamp, Co-organized with D. Krashen
- 2011 UGA Math Club Talk
- 2010 Organized lunch and talk for students by David Saltman, director of IDA
topic: Nonacademic Math Jobs in the Defense Industry
- 2010 UGA Math Club talk
UGA Math Major Fair Presenter

Activities Promoting Elementary and High-School Education

- 2014, 16, 18 UGA MathCamp, organized 5 days of activities at UGA for high-school students
A program for high school students that involved coordinating UGA undergrads,
grad students, postdocs, and faculty. Co-organized with D. Krashen
- 2010-11 Mentoring and Advice for Talented High-school Students program,
involving UGA grad students, and Co-organized with D. Krashen
- 2009-10 UGA Summer Stem Academy, lectures for high-school students
- 2009 Barrow Elementary School Career Day, presentation
- 2000-01 King/Chavez/Parks Workshop, activities for 7th graders from inner-city Detroit
- 1999-00 Saturday Morning Math Group, activities for highschool students in Austin, TX
co-organizer <https://www.ma.utexas.edu/news/newsletter/Outreach/>.

Departmental and University service

- AY 2019 Math and Physical Science rep to the Core Requirements Committee (Rutgers)
Graduate Admissions Committee (Rutgers)
- AY 2018 Algebra Qualifying Exam Committee (Rutgers)
- AY 2016-17 Algebra Qualifying Exam, Personnel, University Council
RTG Summer Coordinator (UGA)
- AY 2015-16 Personnel, University Council, RTG Academic Year Coordinator (UGA)
- AY 2014-15 University Council, VIGRE Co-director, RTG Summer Coordinator (UGA)
- AY 2013-14 Algebra Qualifying Exam Committee, Graduate, VIGRE Co-director (UGA)
- AY 2012-13 Algebra Qualifying Exam, Graduate, VIGRE Co-director (UGA)
- AY 2010-11 Algebra Qualifying Exam, Cantrell Lecture Series, Personnel, VIGRE Co-PI (UGA)
- AY 2006-07 Committee to increase number of math majors, Committee to write a
VIGRE proposal (UPenn)
- AY 2005-06 Committee to write a VIGRE proposal, Mathematics Graduate
Admissions Committee (UPenn)

**Invited talks 2001–05 (15 lectures); 2006–10 (12 lectures);
Select talks since 2011:**

- 2020 JMM Special Session on Cohomological Field Theories and Wall Crossings, and the Special Session on Mathematical aspects of Conformal Field Theory
Topics in refined theories and beyond at ETH-ITS, Zurich

- 2019 Facets in Algebraic Geometry, Ann Arbor, Michigan
Verlinde Algebras and the Grassmannian, Guangzhou, China
Texas Algebraic Geometry Symposium, Austin, Texas

- 2018 School on the Geometry of Moduli Spaces of Curves, Trieste, ITALIA
Algebraic Geometry Seminars at Columbia, Harvard/MIT, and Princeton

- 2017 Colloquium, and Undergraduate Colloquium, UPenn
GAeL (Géométrie Algébrique en Liberté), Bath University, UK
Texas Algebraic Geometry Symposium (TAGS), Rice U, TX,

- 2016 Canadian Maths Society Winter Meeting, “Comb. Alg. Geom”
Colloquium at Cornell, UCI, UCLA, University of Oregon, OSU, and Rutgers
Intro Workshop, Comb Alg Geom Program, Fields, CA (2 invited lectures)
American Institute of Mathematics, San Jose, CA
Algebraic Cycles and Moduli, CRM, Université de Montreal, CA

- 2015 University of Maryland Colloquium
The second annual MAAGC workshop, Philadelphia, PA
Developments in Moduli and Geometric Invariant Theory, UNC

- 2014 Southern California Algebraic Geometry Seminar (SoCalAGS), USC
Algebraic Geometry Seminar, Warwick University, Coventry, England
Moduli and Automorphic Forms, Berlin, Germany
New connections for recent PhDs, University of Washington

- 2013 Workshop on Moduli Spaces in Algebraic Geometry, Oberwolfach, Germany
Universita Sapienza, Rome, Italy (5 invited lectures)
Algebraic Geometry Northeast Sectional Meeting (AGNES), Yale University

- 2012 Columbia University, Algebraic Geometry Seminar, New York, NY

- 2011 Institut Fourier, Université Grenoble I, France
Warwick Mathematics Institute, Coventry, England
Imperial College London MAGIC Seminar, England
Texas Algebraic Geometry Symposium (TAGS), Rice, TX
Workshop on Moduli and Birational Geometry, Pohang, Korea

Teaching Experience, Courses taught

Michigan	2000	116	Calculus III	
	2001	216	Introduction to Differential Equations	
		731	Topics in Algebraic Geometry (The Moduli Space of Curves)	
2002	115	Calculus I		
	116	Calculus III		
Yale	2003	480b	Introduction to Algebraic Geometry	
	2004	115a	Calculus II	
Penn	2004	370	Algebra I	
	2005	371	Algebra II	
		520	Graduate topics course (Moduli of stable maps)	
	2006	624	Graduate algebraic geometry I	
	2007	103	Introduction to calculus	
		312/402	Advanced linear algebra	
		625	Graduate algebraic geometry II	
	2008	724	Graduate topics course (Introduction to moduli spaces)	
	UGA	2009	2250	Calculus I for Science and Engineering (2 sections)
			2260	Calculus II for Science and Engineering
		3000	Linear Algebra	
		8850	Directed Collaborative Research (VRG)	
2010		4000/6000	Modern Algebra and Geometry I	
		8330	Topics in Algebraic Geometry (Toric Varieties)	
		7005/9005	Graduate Student Seminar (Mock AMS Conference)	
2011		2260	Calculus II for Science and Engineering (2 sections)	
		7005/9005	Graduate Student Seminar (Mock AMS Conference)	
2012		8850	Directed Collaborative Research (VRG, Spring and Fall)	
		8000	Graduate Algebra	
		8850	Directed Collaborative Research (VRG) (2 semesters)	
		2013	2250	Calculus I for Science and Engineering (2 sections)
		2014	2260	Calculus II for Science and Engineering (2 sections)
8850			Directed Collaborative Research (VRG)	
2015		8330	Topics Alg Geometry (Quantum Cohomology)	
		9000	Doctoral Research	
		2260	Calculus II for Science and Engineering (2 sections)	
		8310	Geometry of Schemes	
		8850	Directed Collaborative Research (VRG)	
	9000	Doctoral Research		
	2016	2260	Calculus II for Science and Engineering (2 sections)	
8330		Topics Alg Geometry (Conformal Blocks, Spring)		
8330		Topics Alg Geometry (Moduli of Curves, Fall)		
8800		Directed Reading and/or Projects		
2017	4010/6010	Modern Alg and Geometry		
	9000	Doctoral Research		
Rutgers	2017		History of Math (fall)	
	2018	552, 350	Graduate Algebra 2 (spring), Linear Algebra (fall)	
	2019	552, 428	Graduate Algebra 2, Graph Theory (spring)	
	2019		Graduate Algebraic Geometry (Fall).	