

Angela GIBNEY

Curriculum Vitæ

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Education

2000 Ph.D. Mathematics University of Texas, Austin
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

Moduli of Curves and Generalizations; Vector Bundles on Curves and their Moduli; Vertex algebras, Vector Bundles of Conformal Blocks; Positive Cycles on Projective Varieties.

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>
- *On higher Chern classes of vector bundles of conformal blocks*
(with S. Mukhopadhyay)
<https://arxiv.org/abs/1609.04887>
- *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>
- *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>

- *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
<https://www.ems-ph.org/qsearch.php>
- *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>
- *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/>

Classes taught

- Undergraduate:
 - Calculus (all levels),
 - Graph theory and combinatorics,
 - History of math,
 - Linear algebra,
 - Algebra (first and second semester).
- Graduate:
 - Algebra (first and second semester),
 - Algebraic geometry (varieties, schemes, cohomology, and curves),
 - Gromov–Witten theory,
 - Intersection theory,
 - Moduli of curves,
 - Toric varieties.
- Special Lecture series:
 - Vector bundles of conformal blocks

**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

Broader impact activities

- **Early career supporter:** have started the new Early Career Section of the AMS Notices features articles by mathematicians with advice on aspects of the profession for early career people and those who mentor them <http://www.angelagibney.org/the-early-career/>.
- **Conference co-organizer:** have co-organized numerous conferences and workshops including AGNES at Rutgers (co-organized with Krashen, Borisov, & Buch); The Georgia Summer Workshop in Algebraic Geometry at UGA (co-organized with A. Depurkar, J. Kass, and N. Tarasca); Fields' Institute semester week long program in Fall 2016 (co-organized with Abramovich, Coskun, Smith, and Stillman); The Bootcamp for graduate students and young PhD's at the Algebraic Geometry Summer Institute at Salt Lake City (co-organized with Coskun, de Fernex, and Lieblich); The Georgia Algebraic Geometry Symposium, the VIGRE Algebraic Geometry Summer School in 2012 and the Compact Moduli and Vector Bundles conference in 2010 (co-organized with Alexeev, Izadi and Krashen); the Birational Geometry and the MMP workshop, 2010, Snowbird, Utah (co-organizers Abramovich, Coskun, McKernan and de Fernex); the Combinatorial Algebraic Geometry section of the AMS meeting in Hoboken (co-organized in 2007 with Maclagan).
- **High-school math student advocate:** Together with Daniel Krashen co-organized a week of activities for high-school students at UGA called MATHCAMP (4 times) <https://torsor.github.io/mathcamp/>. Before that we co-organized the Mentoring and Advice for Talented High-school Students.
- **Graduate student lecturer:** Have given several invited lecture series for graduate students including the school on the Geometry of Moduli Spaces of Curves, Trieste, ITALIA, 5 lectures, (2018) GAeL, Bath University, 4 lectures (2017); Universita Sapienza, Rome, Italy, 5 lectures (2013).
- **Supporter of women in math:** Have co-organized and spoken at numerous conferences, workshops and special events aimed at supporting women in mathematics including the Workshop on math advice and networking at UPenn (2019); Strength In Numbers, workshop, Queen's Univ., CA (2018); Graduate workshop in Algebraic Geometry for Women & Mathematicians of Minority Genders, Harvard/MIT (2018); FEW Speaker at the University of Pennsylvania (2017); With Linda Chen, AWM Research Symposium co-organizer, Special Session in Algebraic Geometry, UM (2015); Moduli and Automorphic Forms, Berlin, Germany (2014). With Maclagan and Sidman, co-organized a Connections for Women at MSRI, 2009.