

Angela Gibney

Curriculum Vitae

Education

- 2000 **Ph.D.**, *University of Texas*, Austin.
- 1994 **Bachelor of Science, Mathematics**, *The University of California*, Santa Barbara.
- 1993 **Alg Geom Study Abroad**, *Mathematics Research Institute*, Utrecht, Netherlands.
- 1992 **Budapest Semesters in Mathematics**, *Eötvös University*, Budapest, Hungary.

Ph.D Thesis

- Title Fibrations of $\overline{\mathcal{M}}_{g,n}$
- Supervisor Sean Keel

Experience

- 2017–Present **Professor**, *Rutgers University*, New Brunswick.
- 2009–2017 **Assistant, Associate, Professor**, *University Of Georgia*, Athens.
- 2004–2008 **Assistant Professor**, *University of Pennsylvania*, Philadelphia.
- 2003–2004 **Gibbs Assistant Professor**, *Yale University*, New Haven.
- 2000–2003 **VIGRE Assistant Professor**, *University of Michigan*, Ann Arbor.

Research Interests

Algebraic geometry and representation theory: In particular moduli of curves and their generalizations; vector bundles, and representations of vertex operator algebras.

Funding

- 2019-22 NSF DMS-1902237 (personal award)
- 2016-19 NSF DMS-1601909 (personal award)
- 2012-16 NSF DMS-1201268 (personal award)
- 2005-09 NSF DMS-0509319 (personal award)
- 2014-19 NSF DMS-1344994 (RTG)
- 2019-23 NSF DMS-1937370 (AGNES)
- 2015-18 NSF DMS-1522813 (GAGS)
- 2015 NSF DMS - 1500652 (Bootcamp for Alg Geom Summer Research Institute)
- 2015 NSA - 141006 (Bootcamp for Alg Geom Summer Research Institute)

342 Madison Avenue – Highland Park, NJ 08904
☎ (215) 756 1571 • ✉ angela.gibney@gmail.com
🌐 <http://www.angelagibney.org>

Publications and Preprints

- *Vertex algebras of CohFT-type*
(with C. Damiolini, and N. Tarasca), to appear 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), to appear in Geometry & Topology
<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., Zürich, 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{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)
Journal of the American Mathematical Society, Volume 15, Number 2, 273–294, 2002
<https://doi.org/10.1090/S0894-0347-01-00384-8>

Publications and Preprints: Editorial

- *The Early Career in pandemic times*
(associate editor, with editor Erica Flapan)
Notices of the American Math. Soc., to appear Jan 2020
- *In the Early Career*
(associate editor, with editor Erica Flapan)
Notices of the American Math. Soc., Jan 2020
<https://www.ams.org/journals/notices/202001/rnoti-p56.pdf>
- *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/>

Research advising of graduate students and postdocs

- 2020 - Allison Bu, PhD co-advisor with Doron Zeilberger, Rutgers University
- 2018 - Chiara Damiolini, postdoctoral advisor, Rutgers University
- 2017-19 Nicola Tarasca, postdoctoral advisor, UGA and Rutgers University
- 2016-17 Anand Deopokur, postdoctoral co-advisor with V. Alexeev, UGA
Michael Schuster, postdoctoral advisor, UGA
- 2012-17 Natalie Hobson, PhD Advisor, UGA
- 2013-16 Anna Kazanova, postdoctoral advisor, UGA
- 2011-13 Gulden Cinar, Masters Advisor, UGA
Han-Bom Moon, postdoctoral advisor, UGA
- 2008-11 David Swinarski, postdoctoral Co-advisor with V. Alexeev, UGA

Invited Talks

2001-05 (15 lectures); 2006-10 (12 lectures); 2011-14 (30 lectures);

Select talks since 2011:

- 2020 JMM Special Session on Cohomological Field Theories and Wall Crossings, Topics in refined theories and beyond at ETH-ITS, Zurich (online)
- 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

Undergraduate **classes taught** *abstract algebra (I,II), calculus (I,II,III, IV), combinatorics, graph theory, history of mathematics, linear algebra (computational, proof based)*

Graduate **classes taught** *abstract algebra (I,II), algebraic geometry (varieties, schemes, cohomology, and curves), Gromov-Witten theory, intersection theory, moduli of curves, toric varieties. vector bundles of conformal blocks.*

Broader impact activities

- **Early career mentor:** started and currently run the Early Career Section of the AMS Notices featuring articles by mathematicians with advice on aspects of the profession for early career people and their mentors https://www.ams.org/cgi-bin/notices/amsnotices.pl?article_id=career&article_type=gallery&gallery_type=career.
- **Supporter of women in math:** Have participated, co-organized, and spoken at numerous conferences, workshops and special events aimed at supporting women in mathematics including the Women in Algebraic Geometry at ICERM (2020), 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).
- **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. Deopurkar, 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, IT, 5 lectures, (2018) GAeL, Bath University, 4 lectures (2017); Universita Sapienza, Rome, IT 5 lectures (2013).