

Rahul Pandharipande

Curriculum Vitae

Educational History

A.B. Mathematics, Princeton University, 1990, *summa cum laude*
Ph.D. Mathematics, Harvard University, 1994

Professional History

1994-96 L. E. Dickson Instructor, University of Chicago
1996-97 Fellow, Institut Mittag-Leffler (Stockholm)
1997-98 Assistant Professor, University of Chicago
1998-00 Associate Professor, California Institute of Technology
2001-02 Professor, California Institute of Technology
2001-02 Visiting Professor, Princeton University
2002-11 Professor, Princeton University
2010-11 Visiting Professor, IST Lisbon
2011- Professor, ETH Zürich
2019- Director, ITS-ETH Zürich

Honors

Academia Europaea 2020
Invited speaker [plenary] ICM 2018 (Rio de Janeiro)
ERC Advanced Grants 2013-2018 & 2018-
Infosys Prize for Mathematics 2013
Clay Research Prize 2013
Compositio Prize 2010
Invited speaker [section] ICM 2002 (Beijing)
David and Lucile Packard Foundation Fellowship, 2000-2005

Graduate students

T. Graber, Ph.D. 1998 (Professor, Caltech)
D. Maulik, Ph.D. 2007 (Professor, MIT)
B. Bakker, Ph.D. 2010 (Assistant Prof., Univ. of Illinois Chicago)
V. Shende, Ph.D. 2011 (Assistant Prof., UC Berkeley)
I. Setayesh, Ph.D. 2011 (Instructor, Univ. of Toronto Mississauga)
Y. Cooper, Ph.D. 2013 (Post-doc, Notre Dame)
A. Pixton, Ph.D. 2013 (Assistant Prof., Univ. of Michigan)
G. Oberdieck, Ph.D. 2015 (Junior Fellow, Univ. of Bonn)
F. Janda, Ph.D. 2015 (Assistant Prof., Notre Dame)
C. Schiessl, Ph.D. 2017 (Heidenhain AG)
J. Shen, Ph.D. 2018 (Moore Instructor, MIT)
I. Barros, Ph.D. 2018 (Post-doc, HyperK Orsay)
J. Schmitt, Ph.D. 2019 (Post-doc, MPI Bonn)

Current students: Y. Bae, T. Büles, A. Cela, M. Moreira

Current post-docs: W. Lim, S. Molcho, U. Riess, K. Slavov,
L. Wu, M. Yakerson

Journals

Editorial board, *Portugaliae Mathematica* (2010-)
Editorial board, *Algebraic Geometry* (2013-)
Editorial board, *Peking Mathematical Journal* (2018-)
Editorial board, *Inventiones Mathematicae* (2012-18)
Editorial board, *Journal of the Math Society of Japan* (2013-18)

Service

SwissMAP group leader for GTP (2014-)
Advisory board, *Forchungsinstitut für Mathematik*, ETHZ (2013-)
Advisory board, *Institute for Theoretical Studies*, ETHZ (2013-2019)
Abel prize committee (2014-16)
EMS prize committee (7th ECM, Berlin 2016)
Hopf prize committee (2015-17)

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- (2) R. Pandharipande, *A compactification over \overline{M}_g of the universal moduli space of slope-semistable vector bundles*, JAMS **9** (1996), 425–471.
- (3) R. Pandharipande, *The symmetric function $H^0(\overline{M}_{0,n}, L_1^{x_1} \otimes \cdots \otimes L_n^{x_n})$* , J. Alg. Geom. **6** (1997), 721–731.
- (4) R. Pandharipande, *The canonical class of $\overline{M}_{0,n}(\mathbb{P}^r, d)$ and enumerative geometry*, IMRN (1997), 173–186.
- (5) R. Pandharipande, *Counting elliptic plane curves with fixed j -invariant*, Proc. AMS. **125** (1997), 3471–3479.
- (6) J. Harris, B. Mazur, and R. Pandharipande, *Unirationality of smooth hypersurfaces*, Duke J. Math. **95** (1998), 125–160.
- (7) R. Pandharipande, *The Chow ring of the non-linear Grassmannian*, J. Alg. Geom. **7** (1998), 123–140.
- (8) R. Pandharipande, *The equivariant Chow rings of $O(k)$, $SO(2k+1)$, and $SO(4)$* , J. Reine Angew. Math. **496** (1998), 131–148.
- (9) L. Göttsche and R. Pandharipande, *The quantum cohomology of blow-ups of \mathbb{P}^2 and enumerative geometry*, J. Diff. Geom. **48** (1998), 61–90.
- (10) R. Pandharipande, *Rational curves on hypersurfaces [after A. Givental]*, Séminaire Bourbaki **848**, 50ème année, 1997–1998.
- (11) E. Getzler and R. Pandharipande, *Virasoro constraints and Chern classes of the Hodge bundle*, Nuclear Phys. **B530** (1998), 701–714.
- (12) R. Pandharipande, *Intersections of \mathbb{Q} -divisors on Kontsevich’s moduli space $\overline{M}_{0,n}(\mathbb{P}^r, d)$ and enumerative geometry*, Trans. AMS. **4** (1999), 1481–1505.
- (13) R. Pandharipande, *A geometric construction of Getzler’s elliptic relation*, Math. Ann. **313** (1999), 715–729.
- (14) T. Graber and R. Pandharipande, *Localization of virtual classes*, Invent. Math. **135** (1999), 487–518.
- (15) R. Pandharipande, *Hodge integrals and degenerate contributions*, Comm. Math. Phys. **208** (1999), 489–506.

- (16) P. Belorousski and R. Pandharipande, *A descendent relation in genus 2*, Ann. Scuola Norm. Sup. Pisa Cl. Sci. **29** (2000), 171–191.
- (17) C. Faber and R. Pandharipande, *Hodge integrals and Gromov-Witten theory*, Invent. Math. **139** (2000), 173–199.
- (18) R. Pandharipande, *The Toda equation and the Gromov-Witten theory of the Riemann sphere*, Lett. Math. Phys. **53** (2000), 59–74.
- (19) C. Faber and R. Pandharipande (with an appendix by D. Zagier), *Logarithmic series and Hodge integrals in the tautological ring*, Michigan Math. J. **48** (2000), 215–252.
- (20) B. Kim and R. Pandharipande, *The connectedness of the moduli space of maps to homogeneous spaces*, in Proceedings of *Symplectic geometry and mirror symmetry, KIAS 2000*, F. Fukaya, Y.-G. Oh, K. Ono, G. Tian Eds., World Scientific (2001), 187–203.
- (21) J. Bryan and R. Pandharipande, *BPS states of curves in Calabi-Yau 3-folds*, Geom. Topol. **5** (2001), 287–318.
- (22) B. Fantechi and R. Pandharipande, *Stable maps and branch divisors*, Compositio Math. **130** (2002), 345–364.
- (23) T. Graber, J. Kock, and R. Pandharipande, *Descendent invariants and characteristic numbers*, Amer. J. Math. **124** (2002), 611–647.
- (24) E. Getzler, A. Okounkov, and R. Pandharipande, *Multipoint series of Gromov-Witten invariants of \mathbf{P}^1* , Lett. Math. Phys. **62** (2002), 159–170.
- (25) R. Pandharipande, *Three questions in Gromov-Witten theory*, Proceedings of the ICM (Beijing 2002), Vol. II, 503–512.
- (26) T. Graber and R. Pandharipande, *Constructions of nontautological classes on moduli spaces of curves*, Michigan Math J. **51** (2003), 93–109.
- (27) C. Faber and R. Pandharipande, *Hodge integrals, partition matrices, and the λ_g conjecture*, Ann. of Math. **157** (2003), 97–124.
- (28) K. Hori, S. Katz, A. Klemm, R. Pandharipande, R. Thomas, C. Vafa, R. Vakil, and E. Zaslow, *Mirror Symmetry*, AMS: Providence, R.I., 2003.

- (29) Y.-P. Lee and R. Pandharipande, *A reconstruction theorem in quantum cohomology and quantum K-theory*, Amer. J. Math **126** (2004), 1367–1379.
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- (33) J. Bryan and R. Pandharipande, *Curves in Calabi-Yau threefolds and TQFT*, Duke J. Math. **126** (2005), 369–396.
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- (37) A. Okounkov and R. Pandharipande, *Virasoro constraints for target curves*, Invent. Math. **163** (2006), 47–108.
- (38) D. Maulik and R. Pandharipande, *A topological view of Gromov-Witten theory*, Topology **45** (2006), 887–918.
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- Moduli, Vol. I*, 293–330, Advanced Lectures in Mathematics 24, International Press, Beijing, 2013.
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 - (81) G. Oberdieck and R. Pandharipande, *Curve counting on $K3 \times E$, the Igusa cusp form χ_{10} , and descendent integration*, in *K3 surfaces and their moduli*, C. Faber, G. Farkas, and G. van der Geer, eds., Birkhauser Prog. in Math. **315** (2016), 245–278.
 - (82) R. Pandharipande and R. Thomas, *The Katz-Klemm-Vafa conjecture for K3 surfaces*, *Forum of Mathematics Pi* **4** (2016).
 - (83) R. Pandharipande and R. Thomas, *Notes on the proof of the KKV conjecture*, *Surveys Diff. Geom.* **21** (2016), 289–311.
 - (84) R. Pandharipande, *Maps, sheaves, and K3 surfaces* in *Lectures on geometry*, N. M. J. Woodhouse, ed., Oxford Univ. Press, (2017), 159–185.
 - (85) R. Pandharipande and A. Pixton, *GW/P correspondence for the quintic 3-fold*, *JAMS* **30** (2017), 389–449.
 - (86) Y. Cooper and R. Pandharipande, *A Fock space approach to Severi degrees*, *Proc. London Math. Soc.* **114** (2017), 476–494.
 - (87) A. Marian, D. Oprea, and R. Pandharipande, *Segre classes and Hilbert schemes of points*, *Ann. Sci. de l’ENS* **50** (2017), 239–267.

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- (90) G. Farkas and R. Pandharipande, *The moduli space of twisted canonical divisors*, J. Institute Math. Jussieu **17** (2018), 615–672.
- (91) H. Lho and R. Pandharipande, *Stable quotients and the holomorphic anomaly equation*, Adv. Math. **332** (2018), 349–402.
- (92) R. Pandharipande, *A calculus for the moduli space of curves*, Proceedings of Algebraic geometry – Salt Lake City 2015, Proc. Sympos. Pure Math. **97** (2018), Part 1, 459–488.
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- (95) R. Pandharipande, *Cohomological field theory calculations*, Proceedings of the ICM – Rio de Janeiro 2018, Vol. 1, Plenary lectures, 869–898, World Sci. Publications: Hackensack, NJ, 2018.
- (96) A. Marian, D. Oprea, and R. Pandharipande, *The combinatorics of Lehn’s conjecture*, Jour. Math. Soc. Japan **1** (2019), 299–308.
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- (103) R. Pandharipande and Q. Yin, *Relations in the tautological ring of K3 surfaces*, JEMS **22** (2020), 213–252.
- (104) A. Oblomkov, A. Okounkov, and R. Pandharipande, *GW/PT descendent correspondence via vertex operators*, Comm. Math. Phys. **374** (2020), 1321–1359.
- (105) R. Pandharipande and J. Schmitt, *Zero cycles on the moduli space of curves*, EPIGA **4** (2020), Art 12, 26 pp.
- (106) R. Pandharipande and A. Pixton, *Relations in the tautological ring of the moduli space of curves*, Mumford’s 80th birthday volume (to appear).
- (107) F. Janda, R. Pandharipande, A. Pixton, and D. Zvonkine, *Double ramification cycles for target varieties*, J. of Topology (to appear).
- (108) A. Marian, D. Oprea, and R. Pandharipande, *Higher rank Segre integrals over the Hilbert scheme of points*, JEMS (to appear).
- (109) D. Oprea and R. Pandharipande, *Quot schemes of curves and surfaces: virtual classes, integrals, and Euler characteristics*, Geom. Topol. (to appear).

Preprints

- (1) R. Pandharipande, J. Solomon, and R. Tessler, *Intersection theory on moduli of disks, open KdV and Virasoro*, preprint 2014.
- (2) D. Johnson, D. Oprea, and R. Pandharipande, *Rationality of descendent series for Hilbert and Quot schemes of surfaces*, preprint 2020.
- (3) A. Buryak, A. Zernik, R. Pandharipande, and R. Tessler, *Open $\mathbb{C}P^1$ descendent theory I: the stationary sector*, preprint 2020.

- (4) Y. Bae, D. Holmes, R. Pandharipande, J. Schmitt, and R. Schwarz, *Pixton's formula and Abel-Jacobi theory on the Picard stack*, preprint 2020.
- (5) N. Arbesfeld, D. Johnson, W. Lim, D. Oprea, and R. Pandharipande, *The virtual K-theory of the Quot schemes of surfaces*, preprint 2020.
- (6) M. Moreira, A. Oblomkov, A. Okounkov, and R. Pandharipande, *Virasoro constraints for stable pairs on toric 3-folds*, preprint 2020.
- (7) S. Molcho, R. Pandharipande, and J. Schmitt, *The Hodge bundle, the universal θ -section, and the log Chow ring of the moduli space of curves*, preprint 2021.