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

Research Prize of the Alexander von Humboldt Foundation 2023
Honorary Doctor of Science 2022, Univ. of Illinois Urbana-Champaign
Academia Europaea 2020
Invited speaker [plenary] ICM 2018 (Rio de Janeiro)
ERC Advanced Grants 2013-2018 & 2018-2023
Einstein visiting fellow (Berlin) 2015-2019
Infosys Prize for Mathematics 2013
Clay Research Prize 2013
Compositio Prize 2010
Gulbenkian Foundation Fellowship (Lisbon), 2010-2011
Invited speaker [section] ICM 2002 (Beijing)
David and Lucile Packard Foundation Fellowship, 2000-2005
A. P. Sloan Foundation Research Fellowship, 1999-2003

Graduate students

T. Graber, Ph.D. 1998	(Professor, Caltech)
D. Maulik, Ph.D. 2007	(Professor, MIT)
B. Bakker, Ph.D. 2010	(Associate Prof., Univ. of Illinois Chicago)
V. Shende, Ph.D. 2011	(Associate Prof., UC Berkeley)
I. Setayesh, Ph.D. 2011	(SoundHound, Toronto)
Y. Cooper, Ph.D. 2013	(Consultant)
A. Pixton, Ph.D. 2013	(Associate Prof., Univ. of Michigan)
G. Oberdieck, Ph.D. 2015	(Professor, Univ. of Heidelberg)
F. Janda, Ph.D. 2015	(Assistant Prof., Univ. of Illinois U-C)
C. Schiessl, Ph.D. 2017	(Physician)
J. Shen, Ph.D. 2018	(Assistant Prof., Yale)
I. Barros, Ph.D. 2018	(Assistant Prof., Antwerp)
J. Schmitt, Ph.D. 2019	(SwissMap post-doc, ETHZ)
T. Bülles, Ph.D. 2022	(Pythia Labs, Los Angeles)
Y. Bae, Ph.D. 2023	(Lewis Research Assistant Prof., Univ. of Michigan)
M. Moreira, Ph.D. 2023	(Moore Instructor, MIT)
A. Cela, Ph.D. 2024	(SNF post-doc, Cambridge Univ.)

Current

L. Drakengren

J. Feusi

A. Iribar López

Post-docs associated to my research group

S. Canning
A. Giacchetto
D. Nesterov
F. Rezaee
J. Schmitt
Y. Schuler

Past post-docs

G. Bérczi (Aarhus Univ.),
P. Bousseau (Georgia and CNRS),
E. Clader (San Francisco SU),
J. Fresan (Jussieu),
D. Johnson (BYU),
W. Lim (Yonsei Univ. Seoul),
A. Morrison,
D. Petersen (Stockholm Univ.),
U. Riess,
I. Schwarz (KPMG),
K. Slavov (ETHZ),
R. Tessler (Weizmann Institute),
M. Yakerson (Jussieu and CNRS),
F. You (Nottingham),
A. Bojko (Academia Sinica Taipei),
A. Buryak (HSE Moscow),
H. Fan (Univ. of Geneva),
J. Guéré (Univ. of Grenoble),
H. Lho (CNU Korea),
S. Molcho (Sapienza Univ. Rome),
A. Oblomkov (UMass Amherst),
M. Polito (Google),
E. Scheidegger (Beijing Univ.),
J. Solomon (Hebrew Univ. Jerusalem),
S. Stark,
L. Wu (SUST Shenzhen),
Q. Yin (Beijing Univ.),
J. van Zelm (Scandio).

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)
Fields medal committee (ICM 2022)

Bibliography

(1) W. Fulton and R. Pandharipande, *Notes on stable maps and quantum cohomology*, in Proceedings of Algebraic Geometry – Santa Cruz 1995, Proc. Sympos. Pure Math. **62**, Part 2, 45–96.
(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.
(30) N. Katz and R. Pandharipande, *Inequalities related to Lefschetz pencils and integrals of Chern classes*, in *Geometric aspects of Dwork theory*, A. Adolfson, F. Baldassarri, P. Berthelot, N. Katz, F. Loeser Eds., de Gruyter (2004), 805–819.
(31) A. Okounkov and R. Pandharipande, *Hodge integrals and invariants of the unknot*, Geom. Topol. **8** (2004), 675–699.
(32) C. Faber and R. Pandharipande, *Relative maps and tautological classes*, JEMS **7** (2005), 13–49.
(33) J. Bryan and R. Pandharipande, *Curves in Calabi-Yau threefolds and TQFT*, Duke J. Math. **126** (2005), 369–396.
(34) J. Bryan and R. Pandharipande, *On the rigidity of stable maps to Calabi-Yau threefolds*, in *The interaction of finite-type and Gromov-Witten invariants (BIRS 2003)*, Geom. Top. Monogr. **8** (2006), 97–104.
(35) A. Okounkov and R. Pandharipande, *Gromov-Witten theory, Hurwitz numbers, and completed cycles*, Ann. of Math. **163** (2006), 517–560.
(36) A. Okounkov and R. Pandharipande, *The equivariant Gromov-Witten theory of* $\mathbf{P}^1$, Ann. of Math. **163** (2006), 561–605.
(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.
(39) E. Getzler and R. Pandharipande, *The Betti numbers of* $\overline{M}_{0,n}(\mathbf{P}^r, d)$, J. Alg. Geom. **15** (2006), 709–732.
(40) D. Maulik, N. Nekrasov, A. Okounkov, and R. Pandharipande, *Gromov-Witten theory and Donaldson-Thomas theory I*, Compositio Math. **142** (2006), 1263–1285.
(41) D. Maulik, N. Nekrasov, A. Okounkov, and R. Pandharipande, *Gromov-Witten theory and Donaldson-Thomas theory II*, Compositio Math. **142** (2006), 1286–1304.
(42) J. Bryan, T. Graber, and R. Pandharipande, *The orbifold quantum cohomology of* $\mathbb{C}^2/\mathbb{Z}_3$, J. Alg. Geom. **17** (2008), 1–28.
(43) J. Bryan and R. Pandharipande, *Local Gromov-Witten theory of curves*, JAMS **21** (2008), 101–136.

(44) R. Pandharipande, J. Solomon, and J. Walcher, *Disk enumeration on the quintic 3-fold*, JAMS **21** (2008), 1169–1209.
(45) D. Maulik and R. Pandharipande, *New calculations in Gromov-Witten theory*, PAMQ **4** (2008), 469–500.
(46) A. Eskin, A. Okounkov, and R. Pandharipande, *The theta characteristic of a branched covering*, Adv. Math. **217** (2008), 873–888.
(47) A. Klemm and R. Pandharipande, *Enumerative geometry of Calabi-Yau 4-folds*, Comm. Math. Phys. **281** (2008), 621–653.
(48) A. Okounkov and R. Pandharipande, *Gromov-Witten theory, Hurwitz numbers, and matrix models*, Proceedings of Algebraic geometry – Seattle 2005, Proc. Sympos. Pure Math. **80**, Part 1, 324–414.
(49) M. Levine and R. Pandharipande, *Algebraic cobordism revisited*, Invent. Math. **176** (2009), 63–130.
(50) R. Pandharipande and R. Thomas, *Curve counting via stable pairs in the derived category*, Invent. Math. **178** (2009), 407–447.
(51) R. Pandharipande and R. Thomas, *The 3-fold vertex via stable pairs*, Geom. Topol. **13** (2009), 1835–1876.
(52) A. Okounkov and R. Pandharipande, *Quantum cohomology of the Hilbert scheme of points of the plane*, Invent. Math. **179** (2010), 523–557.
(53) R. Pandharipande and A. Zinger, *Enumerative geometry of Calabi-Yau 5-folds*, in *New developments in algebraic geometry, integrable systems, and mirror symmetry (RIMS, Kyoto 2008)*, M.-H. Saito, S. Hosono, K. Yoshioka, Eds., Math. Soc. of Japan (2010), 239–288.
(54) R. Pandharipande and R. Thomas, *Stable pairs and BPS invariants*, JAMS **23** (2010), 267–297.
(55) D. Maulik, R. Pandharipande, and R. Thomas, *Curves on $K3$ surfaces and modular forms*, J. of Topology **3** (2010), 937–996.
(56) M. Gross, R. Pandharipande, and B. Siebert, *The tropical vertex,* Duke J. Math. **153** (2010), 297–362.
(57) M. Gross and R. Pandharipande, *Quivers, curves, and the tropical vertex*, Portugalia Math. **67** (2010), 211–259.
(58) A. Okounkov and R. Pandharipande, *The local Donaldson-Thomas theory of curves*, Geom. Topol. **14** (2010), 1503–1567.
(59) A. Klemm, D. Maulik, R. Pandharipande, and E. Scheidegger, *Noether-Lefschetz theory and the Yau-Zaslow conjecture*, JAMS **23** (2010), 1013–1040.
(60) A. Okounkov and R. Pandharipande, *The quantum differential equation of the Hilbert scheme of points in the plane*, Transform. Groups **15** (2010), 965–982,
(61) X. Liu and R. Pandharipande, *New topological recursion relations*, J. Alg. Geom. **20** (2011), 479–494.

(62) P. Johnson, R. Pandharipande, and H.-H. Tseng, *Abelian Hurwitz-Hodge integrals*, Michigan Math J. **60** (2011), 171–198.
(63) D. Maulik, A. Oblomkov, A. Okounkov, and R. Pandharipande, *Gromov-Witten/Donaldson-Thomas correspondence for toric 3-folds*, Invent. Math. **186** (2011), 435–479.
(64) A. Marian, D. Oprea, and R. Pandharipande, *The moduli space of stable quotients*, Geom. Topol. **15** (2011), 1651–1706.
(65) R. Pandharipande, *The kappa ring of the moduli of curves of compact type*, Acta Math. **208** (2012), 335–388.
(66) R. Pandharipande, *Descendent bounds for effective divisors on the moduli space of curves*, J. Alg. Geom **21** (2012), 299–303.
(67) Y.-P. Lee and R. Pandharipande, *Algebraic cobordism for bundles on varieties*, JEMS **14** (2012), 1081–1101.
(68) R. Pandharipande and A. Pixton, *Descendent on local curves: Stationary theory* in *Geometry and arithmetic*, 283–307, EMS Ser. Congr. Rep., Eur. Math. Soc., Zürich, 2012.
(69) R. Pandharipande, *Convex rationally connected varieties*, Proc. AMS **141** (2013), 1539–1543.
(70) R. Pandharipande and A. Pixton, *Descendents on local curves: Rationality*, Comp. Math. **149** (2013), 81–124.
(71) R. Pandharipande and A. Pixton, *Descendent theory for stable pairs on toric 3-folds*, Jour. Math. Soc. Japan **65** (2013), 1337–1372.
(72) D. Maulik and R. Pandharipande, *Gromov-Witten theory and Noether-Lefschetz theory* in *A celebration of algebraic geometry*, 469–507, Clay Math. Proc., **18**, Amer. Math. Soc., Providence, RI, 2013.
(73) R. Pandharipande and R. Thomas, *Almost closed 1-forms*, Glasgow Math. J. **56** (2013), 169–182.
(74) C. Faber and R. Pandharipande, *Tautological and non-tautological cohomology of the moduli space of curves* in *Handbook of Moduli, Vol. I*, 293–330, Advanced Lectures in Mathematics 24, International Press, Beijing, 2013.
(75) R. Pandharipande and A. Pixton, *GW/P descendent correspondence for toric 3-folds*, Geom. Topol. **18** (2014), 2747–2821.
(76) R. Pandharipande and R. Thomas, *13/2 ways of counting curves* in *Moduli spaces*, 282–333, London Math. Soc. Lecture Note Ser., 411, Cambridge Univ. Press, Cambridge, 2014.
(77) R. Pandharipande, A. Pixton, and D. Zvonkine, *Relations on $\overline{M}_{g,n}$ via 3-spin structures*, JAMS **28** (2015), 279–309.
(78) A. Marian, D. Oprea, and R. Pandharipande, *The first Chern classes of the Verlinde bundles* in *String-Math 2012*, 87–111, Proc. of Symp. Pure Math. **90**, AMS, Providence, 2015.
(79) A. Buryak, F. Janda, and R. Pandharipande, *The hypergeometric functions of the Faber-Zagier and Pixton relations*, PAMQ **11** (2015), 591–631.

(80) S. Katz, A. Klemm, and R. Pandharipande, *On the motivic stable pairs invariants of $K3$ surfaces* with an Appendix by R. Thomas, in *K3 surfaces and their moduli*, C. Faber, G. Farkas, and G. van der Geer, eds., Birkhauser Prog. in Math. **315** (2016), 111–146.
(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.
(88) A. Marian, D. Oprea, and R. Pandharipande, A. Pixton, and D. Zvonkine, *The Chern character of the Verlinde bundle over the moduli space of stable curves*, J. Reine Angew. Math. **732** (2017), 147–163.
(89) F. Janda, R. Pandharipande, A. Pixton, and D. Zvonkine, *Double ramification cycles on moduli spaces of curves*, Pub. Math. IHES **125** (2017), 221–266.
(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.
(93) J. Bryan, G. Oberdieck, R. Pandharipande, and Q. Yin, *Curve counting on abelian surfaces and threefolds*, Algebraic Geometry **5** (2018), 398–463.
(94) R. Pandharipande, *Descendents for stable pairs on 3-folds*, Modern Geometry: A celebration of the work of Simon Donaldson, Proc. Sympos. Pure Math. **99** (2018), 251–288.

(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.
(97) H. Lho and R. Pandharipande, *Holomorphic anomaly equations for the formal quintic*, Peking Mathematical Journal **2** (2019), 1–40.
(98) R. Pandharipande and D. Zvonkine, *Cohomological field theories with non-tautological classes*, Arkiv Math. **57** (2019), 191–213.
(99) R. Pandharipande, A. Pixton, and D. Zvonkine, *Tautological relations via r-spin structures*, J. Alg. Geom. **28** (2019), 439–496.
(100) H. Lho and R. Pandharipande, *Crepant resolution and the holomorphic anomaly equation for $\mathbb{C}^3/\mathbb{Z}_3$*, Proc. London Math. Soc. **119** (2019), 781–813.
(101) R. Pandharipande and H.-H. Tseng, *Higher genus Gromov-Witten theory of $Hilb^n(\mathbb{C}^2)$ and CohFTs associated to local curves*, Forum of Mathematics Pi **7** (2019).
(102) R. Pandharipande and H.-H. Tseng, *The* Hilb/Sym *correspondence for $\mathbb{C}^2$: descendents and Fourier-Mukai*, Math. Annalen **375** (2019), 509–540.
(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) F. Janda, R. Pandharipande, A. Pixton, and D. Zvonkine, *Double ramification cycles for target varieties*, J. of Topology **13** (2020), 1725–1766.
(107) R. Pandharipande and A. Pixton, *Relations in the tautological ring of the moduli space of curves*, PAMQ **17** (2021), 717–771.
(108) D. Johnson, D. Oprea, and R. Pandharipande, *Rationality of descendent series for Hilbert and Quot schemes of surfaces*, Selecta Math. **27** (2021), Paper No. 23.
(109) N. Arbesfeld, D. Johnson, W. Lim, D. Oprea, and R. Pandharipande, *The virtual K-theory of the Quot schemes of surfaces*, J. Geometry and Physics **164** (2021), Paper No. 104154.
(110) D. Oprea and R. Pandharipande, *Quot schemes of curves and surfaces: virtual classes, integrals, and Euler characteristics*, Geom. Topol. **25** (2021), 3425–3505.

(111) A. Marian, D. Oprea, and R. Pandharipande, *Higher rank Segre integrals over the Hilbert scheme of points*, JEMS **24** (2022), 2979–3015.
(112) A. Buryak, A. Zernik, R. Pandharipande, and R. Tessler, *Open* CP^1 *descendent theory I: the stationary sector*, Adv. Math. **401** (2022), No. 108249.
(113) A. Cela, R. Pandharipande, and J. Schmitt, *Tevelev degrees and Hurwitz moduli spaces*, Math. Proc. Cambridge Philosophical Soc. **173** (2022), 479–510.
(114) M. Moreira, A. Oblomkov, A. Okounkov, and R. Pandharipande, *Virasoro constraints for stable pairs on toric 3-folds*, Forum of Mathematics Pi **10** (2022).
(115) Y. Bae, D. Holmes, R. Pandharipande, J. Schmitt, and R. Schwarz, *Pixton's formula and Abel-Jacobi theory on the Picard stack*, Acta Math. **230** (2023), 205–319.
(116) S. Molcho, R. Pandharipande, and J. Schmitt, *The Hodge bundle, the universal 0-section, and the log Chow ring of the moduli space of curves*, Comp. Math. (2023) **159**, 306–354.
(117) H. Argüz, P. Bousseau, R. Pandharipande, and D. Zvonkine, *Gromov-Witten theory of complete intersections*, J. of Topology **16** (2023), 264–343.
(118) R. Pandharipande, J. Solomon, and R. Tessler, *Intersection theory on moduli of disks, open KdV and Virasoro*, Geom. Topol. (to appear).
(119) C. Lian and R. Pandharipande, *Enumerativity of virtual Tevelev degrees*, Ann. Scuola Norm. Sup. Pisa Cl. Sci. (to appear).
(120) S. Canning, D. Oprea, R. Pandharipande, *The Chow ring of the moduli space of degree 2 quasi-polarized* $K3$ *surfaces*, J. Reine Angew. Math. (to appear).

Preprints

(1) A. Buch and R. Pandharipande, *Tevelev degrees in Gromov-Witten theory*, preprint 2021.
(2) D. Holmes, S. Molcho, R. Pandharipande, A. Pixton, and J. Schmitt, *Logarithmic double ramification cycles*, preprint 2022.
(3) S. Canning, S. Molcho, D. Oprea, R. Pandharipande, *Tautological projection for cycles on the moduli space of abelian varieties*, preprint 2024.
(4) G. Farkas, R. Pandharipande, A. Sammartano, *Irrational components of the Hilbert scheme of points*, preprint 2024.
(5) S. Canning, S. Molcho, D. Oprea, R. Pandharipande, *Tautological and non-tautological cycles on the moduli space of abelian varieties*, preprint 2024.