

Curriculum Vitae (October 9, 2025)

Paul Seidel

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Principal employment:

2007– Professor of Mathematics, MIT;
 in 2014–24: Norman Levinson Professor
2003–07 Professor of Mathematics, University of Chicago
2002–03 Professor of Mathematics, Imperial College London
1999–2002 Chargé de recherche CNRS, Ecole Polytechnique

Visiting or temporary positions:

Fall 2022 (part) Research Member, SLI (MSRI)
Spring 2018 Minerva Visiting Professor, Princeton University
Fall 2017 Eilenberg Visiting Professor, Columbia University
2017–18 Member, IAS, Princeton
2016–17 Distinguished Visiting Professor, IAS, Princeton
2014–15 Fellow of the Radcliffe Institute for Advanced Study
Spring 2011 Visiting Faculty Member, Simons Center SUNY
2006–07 Visiting Professor, MIT
Spring 2003 Visiting Professor, ETH Zürich
2001–02 Member, Institute for Advanced Study
2000–01 Maître de conf. en charge partielle, Ecole Polytechnique
1998–99 Visitor, Max Planck Institut, Bonn
1997–98 Member, IAS, Princeton

Education:

1994–97 DPhil (obtained 1998), Oxford, under S. Donaldson
1990–94 Diploma in math, Heidelberg, under A. Dold

Distinctions:

Member of the American Academy of Arts and Sciences (2014)
Fellow of the American Mathematical Society (2012)
Veblen Prize of the American Mathematical Society (2010)
Junior Faculty Mentoring Award, U Chicago (2006),
Invited speaker, Differential Geometry section, ICM (2002)
European Mathematical Society Prize (2000)

Named/distinguished lectures:

2019 Zabrodsky Lectures, Jerusalem
2018 Floer Lecture, Stanford

2018 Artin Lecture, Heidelberg
 2018 Floer Memorial Lectures, Bochum
 2017 Eilenberg Lectures, Columbia University
 2015 Jankowski Memorial Lecture, Gdansk
 2014 Invited (Plenary) Lecture, AMS/MAA Joint Annual Meeting
 2012 Adem Lecture, Mexico City
 2012 Mordell Lecture, Cambridge University
 2012 Distinguished Lecture Series, UCLA
 2010 Marston Morse Lectures, IAS, Princeton
 2010 Evans Lecture, Berkeley
 2007 William Spencer Lecture, Kansas State University
 2006 Walter Feit Memorial Lecture, Yale

Grants: (* = as only PI)

2022	NSF	Frontiers in Geometry and Topology conference
2019–23	Simons	Simons Collaboration in HMS
2019–22	*NSF	Lefschetz Fibrations, noncommutative counterparts ...
2017	NSF	Symplectic geometry conference ...
2015–18	*NSF	Lefschetz fibrations, mapping tori, ...
2013–16	NSF	FRG: Wall-crossings in geometry...
2012–23	*Simons	Simons Investigator
2010–15	*NSF	Cohomological methods in symplectic topology
2010–15	NSF	RTG: Geometry and Topology
2007–10	NSF	FRG: Homological mirror symmetry ...
2004–07	*NSF	Fukaya categories and applications

PhD students: (Name/graduation/school/subsequent)

Kenneth Blakey	2028 exp.	MIT	
Yonghwan Kim	2028 exp.	MIT	
Zihong Chen	2025	MIT	Trinity JRF
Jae Hee Lee	2024	MIT	Stanford
Tim Large	2021	MIT	Simons Jr. Fellow)
Yusuf Baris Kartal	2019	MIT	Princeton
Umut Varolgunes	2018	MIT	Stanford
Netanel (Rubin-)Blaier	2016	MIT	Harvard (CMSA)/Brandeis
Ailsa Keating	2014	MIT	Simons Jr. Fellow/Trinity JRF
David Jackson-Hanen	2014	MIT	(sports industry)
Nick Sheridan	2012	MIT	Princeton/IAS
Emma Smith (Zbarsky)	2009	Chicago	Wentworth Tech.
Alexander Ritter	2009	MIT	Cambridge (Trinity JRF)
Masuo Yanagisawa	2007	Chicago	(financial industry)
Mohammed Abouzaid	2007	Chicago	Clay Fellow/MIT
Gabriel Kerr	2007	Chicago	Northwestern
Joseph Jones	2006	Chicago	NYU

External service:

2021–24 AMS Steele Prize committee (and for 2022-23, chair)
2020–21 MSRI Director Search committee
2019–20 Northwestern University Nemmers Prize committee
2018–20 Shaw Prize committee
2019 MSRI Summer Research, selection committee
2017–21 MSRI Scientific Advisory Committee
2014–17 Elector for two Chairs, Cambridge University
2013–15 AMS Centennial Prize, committee member
2012–16 Scientific Advisory Committee, Simons Center

Editorial activities:

2019–22 Editorial board member, Geometry and Topology
2016– Editorial board member, Monographs of the EMS
2014–19 Editorial board member, Journal of the EMS
2016–18 Editorial board member, Selecta Math.
2007–15 Editor-in-Chief, Selecta Math.
2006–13 Associate editor, Journal of Symplectic Geometry
2008–12 Associate editor, Duke Mathematics Journal
2004–08 Associate editor, Geometriae Dedicata
2006–08 Editorial board member, ERA of the AMS

Activities as conference and program organizer:

2014– Current developments in Mathematics, Harvard (yearly)
2022 Frontiers in Geometry and Topology, Trieste
2017 String-Math, Hamburg
2017 Symplectic geometry, Newton Institute
2016–17 Special Year on Homological Mirror Symmetry, IAS
2015 Fukaya categories of Lefschetz fibration, MIT
2011 Equivariant quantum cohomology... Simons Center
2011 Mirror symmetry, Miami
2010 Mirror symmetry, MIT
2009 Algebraic structures in SFT, MSRI
2009 Cyclic homology and symplectic topology, AIM
2009–10 Special Year in symplectic and contact geometry, MSRI
2009 Mirror symmetry, MIT
2009 Talbot workshop, South Carolina
2009 Mirror symmetry, Miami
2008 Mirror symmetry, MIT
2008 Mirror symmetry, Miami
2005 Global differential geometry, Oberwolfach
2002 A_∞ -structures and mirror symmetry, Oberwolfach
2000 Symplectic four-manifolds, Paris

Service teaching: (only courses with enrolment > 100)

MIT (2006–) 18.01 (Calculus) Fall 2010/11/15/18/24

Other teaching: (\$ = newly created undergraduate; * = advanced graduate)

MIT (2018–)	Introduction to topology
	Algebraic ODEs and the quantum connection*
	Algebraic topology I
	Geometry and topology in the plane\$
	Introduction to mathematical reasoning\$
	Real analysis
	Lefschetz fibrations in symplectic geometry*
	Algebraic topology II
Princeton (2017–18)	Lefschetz fibrations in symplectic geometry*
MIT (2006–16)	Real analysis
	Riemann surfaces
	Project laboratory in Mathematics
	Symplectic homology*
	Differential geometry
	Geometry of manifolds
	Gromov-Witten theory*
	Categorical dynamics and symplectic topology*
	Geometry of manifolds
Univ. of Chicago (2003–06)	Honors Calculus
	Differential geometry
	Fukaya categories*
	Symplectic geometry of algebraic varieties*
Imperial College (2002–03)	Complex analysis II
	Introduction to quantization

Undergraduate research projects: (Often co-advised, but where I played a mathematically significant role)

Name	Year	Topic
Ariff Johan	2024	Discrete Morse theory
Dain Kim	2022	$\overline{M}_{0,n}$
Zhuofan Xie	2020	Nonnegative connections on surfaces
Qiuyu Ren	2020	(joint)
Aknazar Kazhymurat	2018	Lefschetz fibrations
Yuchen Fu	2016	Random walks Conley-Zehnder index
Umut Varolgunes	2012	Mirror symmetry
Alejandro Ginory	2011	Quantitative Hurwitz theorem
Andrew Geng	2009–10	Knotted symplectic surfaces

Junior researchers mentored:

Name	Period	Institution	Subsequent position
Shaoyun Bai	2024-	MIT	
Alex Pieloch	2022-	MIT	(financial industry)
Charlotte Kirchhof-Lukat	2021-23	MIT	KU Leuven
Li Yang	2020-24	MIT	Cambridge
Daniel Alvarez-Gavela	2020-24	MIT	Brandeis
Abigail Ward	2020-23	MIT	Cambridge
Nicholas Wilkins	2019, 21-23	MIT	MPI Bonn
Hülya Argüz	2016	IAS	Imperial College
Sheel Ganatra	2016	IAS	USC
Heather Lee	2016-17	IAS	Univ. of Washington
Amitai Zernik	2016-17	IAS	(IT industry)
Zachary Sylvan	2016-17	IAS	Columbia
Cheuk Yu Mak	2016-17	IAS	Cambridge
Jingyu Zhao	2016-17	IAS	Harvard/Brandeis
Luis Haug	2016	MIT	ETH (computer science)
Sobhan Seyfaddini	2014-16	MIT	IAS/CNRS
Michael McBreen	2013-14, 15-16	MIT	Toronto
Emmy Murphy	2012-16	MIT	Northwestern
Vivek Shende	2011-13	MIT	Berkeley
Jason McGibbon	2011-14	MIT	Univ. of Mass. Amherst
Mark McLean	2009-12	MIT	IAS/Aberdeen
Kevin Costello	2006-7	Chicago	Northwestern

Internal service (major appointments only):

2020–	teaching coordinator (“area captain”) for topology
2015–16	chair of the Pure Mathematics (senior hiring) committee
2014–15	chair of the Moore (postdoc hiring) committee
2012–14	co-chair of the graduate program

List of publications (Those with a * are ones I like particularly)

Books and book-length papers:

- [1*] Homological mirror symmetry for the quartic surface. Memoirs of the Amer. Math. Soc., vol. 1116, 2015
- [2*] Abstract analogues of flux as symplectic invariants. Mémoires de la Soc. Math. France, vol. 137, 2014
- [3*] Fukaya categories and Picard-Lefschetz theory. ETH Lecture Notes Series vol. 8, European Math. Soc., 2008

Papers:

- [4*] Formal groups and quantum cohomology. Geom. Topol. 27 (2023), 2937–3060
- [5] (with N. Wilkins) Covariant constancy of quantum Steenrod operations. J. Fixed Point Theory Appl. 24 (2022), Paper No. 52. (Part of a special collection in honor of Claude Viterbo)
- [6] Fukaya A_∞ -categories associated to Lefschetz fibrations. VI. Memoirs of the Amer. Math. Soc., to appear
- [7] Fukaya A_∞ -categories associated to Lefschetz fibrations. V. J. Topol. Analysis 15 (2023), 865–934
- [8] Fukaya A_∞ -structures associated to Lefschetz fibrations. IV 1/2. J. Symplectic Geom. 18 (2020), 291–332
- [9] Fukaya A_∞ -structures associated to Lefschetz fibrations. IV. In: Breadth in Contemporary Topology, Proc. Sympos. Pure Math. vol. 102, 195–276. Amer. Math. Soc., 2019
- [10] Fukaya A_∞ -structures associated to Lefschetz fibrations. III. J. Differential Geom. 117 (2021), 485–589
- [11] Connections on equivariant Hamiltonian Floer cohomology. Comm. Math. Helv. 93 (2018), 587–644
- [12*] Fukaya A_∞ -structures associated to Lefschetz fibrations. II 1/2. Adv. Theor. Math. Phys. 20 (2016), 883–944
- [13] Fukaya A_∞ -structures associated to Lefschetz fibrations. II. In: Algebra, Geometry and Physics in the 21st Century (Kontsevich Festschrift), Progress in Math. vol. 324, Birkhäuser, 2017, 295–364
- [14] Picard-Lefschetz theory and dilating $\mathbb{C}^*$ -actions. J. Topology 8 (2015), 1167–1201
- [15] Exotic iterated Dehn twists. Algebraic and Geometric Topol. 14 (2014),

3305–3324

- [16] The equivariant pair-of-pants product in fixed point Floer cohomology. *Geom. Funct. Anal.* 25 (2015), 942–1007
- [17] Disjoinable Lagrangian spheres and dilations. *Invent. Math.* 197 (2014), 299–359
- [18] Lagrangian homology spheres in (A_m) Milnor fibres via $\mathbb{C}^*$ -equivariant A_∞ -modules. *Geom. Topol.* 16 (2012), 2343–2389
- [19] (with J. Solomon) Symplectic cohomology and q -intersection numbers. *Geom. Funct. Anal.* 22 (2012), 443–477
- [20] Fukaya A_∞ -structures associated to Lefschetz fibrations. I. *J. Symplectic Geom.* 10 (2012), 325–388
- [21] Some speculations on Fukaya categories and pair-of-pants decompositions. In: *Surveys in Diff. Geometry* vol. XVII, Intl. Press, 2012, 411–425
- [22] Simple examples of distinct Liouville type symplectic structures. *J. Topol. Anal.* 3 (2011), 1–5
- [23] (with I. Smith) Localization for involutions in Floer cohomology. *Geom. Funct. Anal.* 20 (2010), 1464–1501
- [24] (with M. Maydanskiy) Lefschetz fibrations and exotic symplectic structures on cotangent bundles of spheres. *J. Topology* 3 (2010), 157–180. See also: Corrigendum, *J. Topology* 8 (2015), 884–886.
- [25] Homological mirror symmetry for the genus two curve. *J. Algebraic Geom.* 20 (2011), 727–769
- [26] (with M. Abouzaid) An open string analogue of Viterbo functoriality. *Geometry and Topology* 14 (2010), 627–718
- [27] Suspending Lefschetz fibrations, with an application to local mirror symmetry. *Commun. Math. Phys.* 297 (2010), 515–528
- [28] (with K. Fukaya and I. Smith) The symplectic geometry of cotangent bundles from a categorical viewpoint. In: *Homological Mirror Symmetry: New Developments and Perspectives*, Springer Lect. Notes in Physics vol. 757, 2008, 1–26
- [29] A_∞ -subalgebras and natural transformations. *Homotopy Homology Appl.* 10 (2008), 83–114
- [30*] (with K. Fukaya and I. Smith) Exact Lagrangian submanifolds in simply-connected cotangent bundles. *Invent. Math.* 172 (2008), 1–27
- [31] A biased view of symplectic cohomology. In: *Current Developments in Mathematics 2006*. International Press, 2008, 211–253
- [32] Symplectic homology as Hochschild homology. In: *Algebraic Geometry: Seattle 2005*. Amer. Math. Soc., 2008, part 1, 415–434

- [33*] (with I. Smith) A link invariant from the symplectic geometry of nilpotent slices. *Duke Math. J.* 134 (2006), 453–514
- [34] (with I. Smith) The symplectic topology of Ramanujam’s surface. *Comment. Math. Helv.* 80 (2005), 859–881
- [35] Exact Lagrangian submanifolds in T^*S^n and the graded Kronecker quiver. In: *Different faces of geometry*, Kluwer, 2004, 349–364.
- [36] Lectures on four-dimensional Dehn twists. In: *Symplectic four-manifolds and algebraic surfaces*, Cetraro (2004), LNM vol. 1938, Springer, 2008, 231–268
- [37] Braids and symplectic four-manifolds with abelian fundamental group. *Turkish J. Math.* 26 (2002), 93–100
- [38] Symplectic Floer homology and the mapping class group. *Pacific Math. J.* 206 (2002), 219–229
- [39] Fukaya categories and deformations. In: *Proceedings of the ICM (Beijing)*, Higher Ed. Press, 2002, 351–360
- [40*] A long exact sequence for symplectic Floer cohomology. *Topology* 42 (2003), 1003–1063
- [41*] More about vanishing cycles and mutation. In: *Symplectic Geometry and Mirror Symmetry*, World Scientific, 2001, 429–465
- [42*] Vanishing cycles and mutation. In: *European Congress of Mathematics (Barcelona)*, Birkhäuser, 2002, 65–85
- [43*] (with M. Khovanov) Quivers, Floer cohomology, and braid group actions. *J. Amer. Math. Soc.* 15 (2002), 203–271
- [44] (with R. Thomas) Braid group actions on derived categories of coherent sheaves. *Duke Math. J.* 108 (2001), 37–108
- [45] Graded Lagrangian submanifolds. *Bull. Soc. Math. France* 128 (2000), 103–146
- [46] Lagrangian two-spheres can be symplectically knotted. *J. Differential Geom.* 52 (1999), 145–171
- [47] On the symplectic automorphism groups of $\mathbb{C}P^m \times \mathbb{C}P^n$. In: *Northern California Symplectic Geometry Seminar*, Amer. Math. Society, 1999, 237–250
- [48] π_1 of symplectic automorphism groups and invertibles in quantum homology rings. *Geom. Funct. Anal.* 7 (1997), 1046–1095
- [49] The symplectic Floer homology of a Dehn twist. *Math. Research Lett.* 3 (1996), 829–834

Unpublished: (available on the arXiv or the author's homepage)

[50] (with S. Bai and D. Pomerleano) P -adic Gamma classes and overconvergent Frobenius structures for quantum connections. Preprint, 2025

[51] P -adic splittings of the quantum connection. Preprint, 2025

[52] (with D. Pomerleano) Symplectic cohomology relative to a smooth anti-canonical divisor. Preprint, 2024

[53*] (with D. Pomerleano) The quantum connection, Fourier-Laplace transform, and families of A -infinity-categories. Preprint, 2023

[54*] Fukaya A_∞ -categories associated to Lefschetz fibrations. VIII. Preprint, 2021

[55] (with M. Abouzaid) Altering symplectic manifolds by homologous recombination. Preprint, 2010

[56] Symplectic automorphisms of T^*S^2 . Preprint, 1998; this has been subsumed into my 2024 Cetraro lectures (see above)

[57] Floer homology and the symplectic isotopy problem. DPhil thesis, 1997; most of this has been subsumed into my 2004 Cetraro lectures (see above)