

# Oscar Randal-Williams

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- POSITIONS
- ◇ **University of Cambridge**, (October 2013 – )  
Lecturer (2013–), Reader (2017–), Professor (2020–), Sadleirian Professor (2024–).
  - ◇ **King’s College, University of Cambridge**, (October 2012 – September 2017)  
Research fellow (2012–2016), ordinary fellow (2016–2017).
  - ◇ **University of Cambridge**, (October 2012–October 2013)  
Herchel Smith postdoctoral research fellow.
  - ◇ **University of Copenhagen**, (September 2010–September 2012)  
Postdoctoral position and member of the Center for Symmetry and Deformation.
  - ◇ **Mathematical Institute, University of Oxford**, (January–August 2010)  
EPSRC PhD Plus postdoctoral position.
  - ◇ **Jesus College, University of Oxford**, (October–December 2009)  
Retained lecturer in Mathematics.
- EDUCATION
- ◇ **Jesus College, University of Oxford**, (2006 – 2009)  
DPhil Mathematics, 2009.  
Thesis title: *Stable moduli spaces of manifolds*. Supervisor: U. Tillmann.
  - ◇ **Jesus College, University of Oxford**, (2002 – 2006)  
MMath Mathematics, First Class Honours.
- GRANTS
- ◇ Co-PI, DNRF Grant *Copenhagen center for Geometry and Topology*, ~ DKK 60 million.
  - ◇ ERC Starting Grant, 756444 (HToMS), €974,526.
  - ◇ EPSRC First Grant, EP/M027783/1, £90,898.
  - ◇ LMS Scheme 1 grant, £5,000 (with J. Giansiracusa).
- HONOURS  
AND AWARDS
- ◇ Clay Research Award, 2022 (with S. Galatius).
  - ◇ Invited speaker, International Congress of Mathematicians 2022.
  - ◇ Oberwolfach prize, 2019.
  - ◇ Plenary speaker, Clay Research Conference 2019.
  - ◇ Dannie Heineman prize of the Akademie der Wissenschaften zu Göttingen, 2019.
  - ◇ Philip Leverhulme prize, 2017.
  - ◇ Whitehead prize of the London Mathematical Society, 2017.
  - ◇ Oxford University Senior Mathematical Prize, 2007.
- EDITORIAL  
WORK
- ◇ Journal of Topology. Editor, 2018–
  - ◇ Proceedings of the London Mathematical Society. Managing editor, 2018–2023
  - ◇ London Mathematical Society. Editorial advisor, 2013–2018
- PUBLICATIONS
- ◇ S. Galatius, A. Kupers, and O. Randal-Williams, *Cellular  $E_k$ -algebras*.  
Astérisque, to appear. 201 pages. arXiv:1805.07184.

- A. Kupers and O. Randal-Williams, *On diffeomorphisms of even-dimensional discs*.  
Journal of the American Mathematical Society, to appear. 91 pages. arXiv:2007.13884.
- J. Davighi, B. Gripiaios and O. Randal-Williams, *Differential cohomology and topological actions in physics*.  
Advances in Theoretical and Mathematical Physics, to appear. 38 pages. arXiv:2011.05768.
- S. Galatius and O. Randal-Williams, *Algebraic independence of topological Pontryagin classes*.  
Journal für die reine und angewandte Mathematik, **802** (2023), 287-305.
- O. Randal-Williams, *On the cohomology of Torelli groups. II*.  
International Mathematics Research Notices, to appear. 29 pages. arXiv:2301.01062.
- B. Gripiaios, O. Randal-Williams, and J. Tooby-Smith, *Generalized symmetries of topological field theories*.  
Journal of High Energy Physics, **2023** No. 3 (2023), E87.
- A. Kupers and O. Randal-Williams, *On the Torelli Lie algebra*.  
Forum of Mathematics, Pi, **11** (2023) E13.
- O. Randal-Williams, *The family signature theorem*.  
Proceedings of the Royal Society of Edinburgh (Ranicki memorial issue), to appear. 34 pages. arXiv:2204.11696.
- O. Randal-Williams, *Classical homological stability from the point of view of cells*.  
Algebraic & Geometric Topology, to appear. 13 pages. arXiv:2207.05026.
- M. Bustamante and O. Randal-Williams, *On automorphisms of high-dimensional solid tori*.  
Geometry & Topology, to appear. 50 pages. arXiv:2010.10887.
- A. Keating and O. Randal-Williams, *On the order of Dehn twists*.  
New York Journal of Mathematics, **29** (2023), pp. 203-212.
- O. Randal-Williams, *Diffeomorphisms of discs*.  
Proceedings of the ICM, 2022.
- J. Ebert and O. Randal-Williams, *The positive scalar curvature cobordism category*.  
Duke Mathematical Journal, **171** (11) (2022), pp. 2275-2406.
- O. Randal-Williams, *Tautological rings and stabilisation*.  
Glasgow Mathematical Journal, **64** (2022) no. 1, pp. 231-242.
- M. Krannich, A. Kupers, and O. Randal-Williams, *An  $\mathbf{HP}^2$ -bundle over  $S^4$  with non-trivial  $\hat{A}$ -genus*.  
Comptes Rendus. Mathématique, Tome **359** (2021) no. 2, pp. 149-154.
- A. Kupers and O. Randal-Williams, *Framings of  $W_{g,1}$* .  
Quarterly Journal of Mathematics, **72** (2021) no. 3, pp. 1029-1053.
- O. Randal-Williams, *Homology of Hurwitz spaces and the Cohen–Lenstra heuristic for function fields (after Ellenberg, Venkatesh, and Westerland)*.  
Astérisque No. 422 Séminaire Bourbaki, volume 2018/2019, exposés 1151-1165 (2020), Exp. No. 1164, 469-497.
- A. Kupers and O. Randal-Williams, *The cohomology of Torelli groups is algebraic*.  
Forum of Mathematics, Sigma, **8** (2020), E64.
- M. Krannich and O. Randal-Williams, *Mapping class groups of simply connected high-dimensional manifolds need not be arithmetic*.  
Comptes Rendus. Mathématique, Tome **358** (2020) no. 4, pp. 469-473.
- S. Galatius and O. Randal-Williams, *Operations on stable moduli spaces*.  
Research in the Mathematical Sciences, **7** (2020), E9.

- A. Kupers and O. Randal-Williams, *On the cohomology of Torelli groups*. Forum of Mathematics, Pi, **8** (2020), E7.
- F. Hebestreit, M. Land, W. Lück, and O. Randal-Williams, *A vanishing theorem for tautological classes of aspherical manifolds*. Geometry & Topology **25** (2021) 47-110.
- S. Galatius and O. Randal-Williams, *Moduli spaces of manifolds: a user's guide*. chapter for "Handbook of Homotopy theory", arXiv:1811.08151.
- S. Galatius, A. Kupers, and O. Randal-Williams,  *$E_2$ -cells and mapping class groups*. Institut des Hautes Études Scientifiques. Publications Mathématiques **130** (1) (2019) 1-61.
- J. Ebert and O. Randal-Williams, *Semi-simplicial spaces*. Algebraic & Geometric Topology **19** (4) (2019) 2099-2150.
- J. Ebert and O. Randal-Williams, *Infinite loop spaces and positive scalar curvature in the presence of a fundamental group*. Geometry & Topology **23** (2019) 1549-1610.
- B. Gripaïos, O. Randal-Williams, *Topology of Electroweak Vacua*. Physics Letters B **782** (2018) 94-98.
- O. Randal-Williams, *Some phenomena in tautological rings of manifolds*. Selecta Mathematica **24** (4) (2018) 3835-3873.
- O. Randal-Williams and N. Wahl, *Homological stability for automorphism groups*. Advances in Mathematics **318** (2017) 534-626.
- S. Galatius and O. Randal-Williams, *Homological stability for moduli spaces of high dimensional manifolds. I*. Journal of the American Mathematical Society **31** (1) (2018) 215-268.
- O. Randal-Williams, *Cohomology of automorphism groups of free groups with twisted coefficients*. Selecta Mathematica **24** (2) (2018) 1453-1478.
- S. Galatius and O. Randal-Williams, *Homological stability for moduli spaces of high dimensional manifolds. II*. Annals of Mathematics **186** (1) (2017) 127-204.
- B. Botvinnik, J. Ebert, and O. Randal-Williams, *Infinite loop spaces and positive scalar curvature*. Inventiones mathematicae **209** (3) (2017), 749-835.
- O. Randal-Williams, *An upper bound for the pseudoisotopy stable range*. Mathematische Annalen **368** (3) (2017), 1081-1094.
- S. Galatius, I. Grigoriev, and O. Randal-Williams, *Tautological rings for high dimensional manifolds*. Compositio Mathematica **153** (4) (2017) 851-866.
- F. Cantero and O. Randal-Williams, *Homological stability for spaces of surfaces*. Geometry & Topology **21** (2017) 1387-1467.
- S. Galatius and O. Randal-Williams, *Abelian quotients of mapping class groups of highly connected manifolds*. Mathematische Annalen **365** (1) (2016) 857-879.
- O. Randal-Williams, *Resolutions of moduli spaces and homological stability*. Journal of the European Mathematical Society **18** (2016) 1-81.
- J. Ebert and O. Randal-Williams, *Torelli spaces of high-dimensional manifolds*. Journal of Topology **8** (1) (2015) 38-64.

S. Galatius and O. Randal-Williams, *Stable moduli spaces of high dimensional manifolds*. Acta Mathematica **212** (2014), no. 2, 257-377.

S. Galatius and O. Randal-Williams, *Detecting and realising characteristic classes of manifold bundles*.

Algebraic Topology: Applications and New Directions (Stanford, CA, 2012), Contemp. Math.

J. Ebert and O. Randal-Williams, *Generalised Miller-Morita-Mumford classes for block bundles and topological bundles*.

Algebraic & Geometric Topology **14** (2014) 1181-1204.

O. Randal-Williams, *“Topological chiral homology” and configuration spaces of spheres*. Morfismos (MIMS proceedings issue), **17** (2) (2013) 57-70.

O. Randal-Williams, *Homology of the moduli spaces and mapping class groups of framed,  $r$ -Spin and Pin surfaces*.

Journal of Topology **7** (1) (2014) 155-186.

O. Randal-Williams, *“Group-Completion”, local coefficient systems, and perfection*. Quarterly Journal of Mathematics (Quillen memorial issue) **64** (3) (2013) 795-803 .

O. Randal-Williams, *The space of immersed surfaces in a manifold*.

Mathematical Proceedings of the Cambridge Philosophical Society **154** (3) (2013) 419-438.

O. Randal-Williams, *Relations among tautological classes revisited*.

Advances in Mathematics, **231** (3-4) (2012) 1773–1785.

O. Randal-Williams, *The Picard group of the moduli space of  $r$ -Spin Riemann surfaces*. Advances in Mathematics, **231** (1) (2012) 482–515.

J. Ebert and O. Randal-Williams, *Stable cohomology of the universal Picard varieties and the extended mapping class group*.

Documenta Mathematica, **17** (2012) 417–450.

O. Randal-Williams, *Homological stability for unordered configuration spaces*.

Quarterly Journal of Mathematics, **64**(1) (2013) 303–326.

O. Randal-Williams, *Embedded cobordism categories and spaces of submanifolds*.

International Mathematics Research Notices **3** (2011) 572–608.

S. Galatius and O. Randal-Williams, *Monoids of moduli spaces of manifolds*.

Geometry & Topology **14** (3) (2010) 1243–1302.

O. Randal-Williams, *The homology of the stable non-orientable mapping class group*.

Algebraic & Geometric Topology **8** (2008) 1811–1832.

PREPRINTS

B. Gripanos, O. Randal-Williams, and J. Tooby-Smith, *Smooth generalized symmetries of quantum field theories*, 72 pages. arXiv:2310.16090.

S. Galatius and O. Randal-Williams, *The Alexander trick for homology spheres*, 15 pages. arXiv:2308.15607.

O. Randal-Williams, *Monodromy and mapping class groups of 3-dimensional hypersurfaces*, 28 pages. arXiv:2308.06397.

O. Randal-Williams (with an appendix with Quoc P. Ho), *Configuration spaces as commutative monoids*, 11 pages. arXiv:2306.02345.

O. Randal-Williams, *Stable cohomology of congruence subgroups*, 27 pages. arXiv:2203.01697.

Appendix to: J. Aramayona, K.-U. Bux, J. Flechsig, N. Petrosyan, X. Wu, *Asymptotic mapping class groups of Cantor manifolds and their finiteness properties*. arXiv:2110.05318.

M. Krannich and O. Randal-Williams, *Diffeomorphisms of discs and the second Weiss derivative of  $B\text{Top}(-)$* , 83 pages. arXiv:2109.03500.

O. Randal-Williams, L. Tsui, and X.-G. Wen, *Quantization of Chern-Simons topological invariants for H-type and L-type quantum systems*, 17 pages. arXiv:2008.02613.

S. Galatius, A. Kupers, and O. Randal-Williams,  *$E_\infty$ -cells and general linear groups of infinite fields*, 84 pages. arXiv:2005.05620.

S. Galatius, A. Kupers, and O. Randal-Williams,  *$E_\infty$ -cells and general linear groups of finite fields*, 27 pages. arXiv:1810.11931.

- TEACHING
- ◇ **Lecturer** (at Cambridge)
    - Part IA Groups, Michaelmas 2018, 2019.
    - Part IB Groups, Rings, and Modules, Lent 2016, 2017, 2018, 2024.
    - Part II Algebraic Topology, Michaelmas 2013, 2014, Lent 2024.
    - Part III Homotopy Theory, Lent 2015, (2016 as reading course), 2021.
    - Part III Algebraic Topology, Michaelmas 2016, 2021.
    - Part III Characteristic classes and  $K$ -theory, Lent 2018, (2019 as reading course), 2023.
  - ◇ **Part III essay advisor** (at Cambridge), with titles *Complex cobordism and formal group laws*, *Algebraic K-theory of finite fields*, *Homological stability*, *Finite H-spaces*, *Representation stability*, *Topics in geometric topology*, *Vassiliev theory*, *Algebraic K-theory*, *Exotic spheres*, *Topological Hochschild homology*, *Surface bundles*, *Group cohomology from the topological viewpoint*,  *$E_k$ -algebras*, *Bott periodicity and the J-homomorphism*, *Nilpotence in stable homotopy theory*, *The Goodwillie–Weiss calculus of embeddings*, *Topics in complex cobordism*.
  - ◇ **Examiner** (at Cambridge), IA 2015 and 2016, IB 2018, 2019, 2023 (chair).
  - ◇ **Supervisor** (at King’s college Cambridge)
    - IA Groups, revision Easter 2016, Michaelmas 2016, revision Easter 2017.
    - IA Numbers & Sets, revision Easter 2014.
    - IB Linear Algebra, Michaelmas 2014, revision Easter 2015, Michaelmas 2016, revision Easter 2017.
    - IB Groups, Rings, and Modules, Lent 2017, revision Easter 2017.
    - IB Geometry, Lent 2013.
  - ◇ **Lecturer** (at Copenhagen)
    - Topology, Autumn 2011.
    - Algebraic Topology 1.5, Spring 2011.
  - ◇ **Graduate supervisor**
    - Cambridge PhD supervisor for Nina Friedrich 2014–17, Nils Prigge 2016–20, Ismael Sierra 2019–23, Andreas Stavrou 2019–23, Samuel Muñoz Echániz 2021–. Informal co-supervisor of Copenhagen PhD thesis of Mauricio Esteban Gómez López. Co-supervisor of Barcelona PhD thesis of Federico Cantero Morán.
    - Advisor for two MS theses and two BSc theses, at Copenhagen.
  - ◇ **Postdoctoral advisor**
    - Alexis Aumonier 2023–, Zachary Himes 2022–23, Rachael Boyd 2021–22, Arthur Soulié 2019, Mauricio Bustamante 2019–21, Manuel Krannich 2018–21.
  - ◇ **Graduate lectures**
    - Lecture course on *Homological stability via higher algebra* – Workshop on Homology of Configuration Spaces and related topics, Paris, 15th–17th May 2023.
    - Week-long Oberwolfach seminar on *Cellular  $E_k$ -algebras*, 23rd–29th May 2021.

- Mentor for Talbot workshop on *Moduli spaces of manifolds*, 7th-13th April 2019.
- Lecture course on *Characteristic classes and moduli spaces of manifolds* – Algebraic Topology of Manifolds, Oxford, 11th-15th September 2017.
- Lecture course on *Cohomology of moduli spaces of manifolds* – European Autumn School in Topology, Utrecht, September 19-23 2016.
- Lecture course on *Moduli Spaces of Manifolds* – Young Topologists’ Meeting, Copenhagen, 4th July 2016.
- Lecture course on *Moduli spaces of manifolds*, Hausdorff Institute for Mathematics, Bonn, 4th-8th May 2015.
- Lecture course on *Moduli spaces of high-dimensional manifolds and applications to positive scalar curvature metrics* – Westfälischen Wilhelms-Universität Münster, 9th-13th June 2014.
- Co-organiser of lecture series *Moduli spaces of manifolds*, Copenhagen, February–June 2012.
- Organiser of seminar series *Surgery theory*, Copenhagen, 2011.
- Organiser of lecture series *Surgery theory*, Oxford, 2010.
- Lecture course on *Resolutions of moduli spaces and homological stability*, Oxford, 2010.
- Organiser of seminar series *Classification of Topological Quantum Field Theories, after J. Lurie*, Oxford, 2009.
- Organiser of seminar series *Nilpotence and periodicity in stable homotopy theory*, Oxford, 2008.

CONFERENCE  
TALKS,  
SEMINARS,  
AND  
COLLOQUIA

- Symmetries of manifolds* – Pontificia Universidad Católica de Chile, 6th December 2023.
- Homeomorphisms of contractible manifolds* – Spaces of manifolds: algebraic and geometric approaches, Banff, 27th November 2023.
- Symmetries of manifolds* – LMS Annual General Meeting and Presidential Address, 17th November 2023.
- Homeomorphisms of contractible manifolds* – Algebra and Topology seminar, Copenhagen, 30th October 2023.
- Monodromy and mapping class groups of 3-dimensional hypersurfaces* – KCL Geometry seminar, London, 24th October 2023.
- One-sided h-cobordisms* – Scottish topology seminar, Glasgow, 13th October 2023.
- Homeomorphisms of Euclidean space* – Panorama of Mathematics II, Bonn. 6th October 2023.
- Cobordism and spaces of manifolds* – Centenaire de René Thom, IHÉS, 20th September 2023.
- Two talks on *Homological stability via higher algebra* – Homology of Configuration Spaces and related topics, Paris, 15th-17th May 2023.
- Homeomorphisms of Euclidean space* – Geometry seminar, UCL, 22nd March 2023.
- Algebraic independence of topological Pontrjagin classes* – Seminario de topología algebraica y geométrica, Mexico (online), 15th March 2023.
- Homeomorphisms of Euclidean space* – YMSC Colloquium, Beijing (online), 25th November 2022.
- Algebraic independence of topological Pontrjagin classes* – Ib Fest, Copenhagen, 3rd October 2022.

*Algebraic independence of topological Pontrjagin classes* – Physics from the Point of View of Geometry, Oxford, 30th September 2022.

*Homeomorphisms of Euclidean space* – DMV-Jahrestagung, Berlin, 16th September 2022.

*On topological Pontrjagin classes* – Topologie, Oberwolfach, 24th July 2022.

*Diffeomorphisms of discs* – ICM, at satellite event in Copenhagen, 12th July 2022.

*The family signature theorem* – Twinned Conference on Homotopy Theory with Applications to Arithmetic and Geometry, Bonn, 29th June 2022.

*Spaces of manifolds* – Colloquium, Southampton, 27th May 2022.

*Stable cohomology of congruence subgroups* – COGENT seminar (online), 16th May 2022.

*On topological Pontrjagin classes* – Topology seminar, Melbourne (online), 2nd May 2022.

*Spaces of manifolds* – Colloquium, Princeton (online), 13th April 2022.

*The Torelli Lie algebra* – Johnson homomorphisms and related topics (online), 7th February 2022.

*The Torelli Lie algebra* – Seminar, Mittag-Leffler institute, 25th January 2022.

*On the Torelli Lie algebra* – Topology seminar, Copenhagen, 10th December 2021.

*Tautological rings for smooth manifolds* – Lecture, Delhi (online), 30th November 2021.

*Homeomorphisms of  $\mathbb{R}^d$*  – Colloquium, Sheffield (online), 24th November 2021.

*The second Weiss derivative of  $B\text{Top}(-)$*  – Topology seminar, Warwick, 9th November 2021.

*$E_\infty$ -algebras and general linear groups* – Cohomology of Arithmetic Groups, Banff (online), 14th October 2021.

*Spaces of positive scalar curvature metrics* – The unity of mathematics: A conference in honour of Sir Michael Atiyah, Cambridge, 23rd September 2021.

*Modular operads, modular sequences, and the downward Brauer category* – Operads, Calculus, and Homotopy theory methods in Topology (online), 7th July 2021.

*Diffeomorphisms of odd-dimensional discs* – Building Bridges Seminar (online), 14th April 2021.

*$E_\infty$ -algebras and general linear groups* – Regensburg SFB-Lecture (online), 13th April 2021.

*$E_\infty$ -algebras and general linear groups* – Oxford topology seminar (online), 18th January 2021.

*Diffeomorphisms of discs. I* – Münster topology seminar (online), 9th November 2020.

*Diffeomorphisms of discs* – Princeton algebraic topology seminar (online), 15th November 2020.

*Diffeomorphisms of discs* – MIT topology seminar (online), 14th September 2020.

*Diffeomorphisms of discs* – opening of the Copenhagen center for Geometry and Topology (online), 27th August 2020.

*$E_\infty$ -algebras and general linear groups* – Bonn topology seminar (online), 28th April 2020.

*$E_k$ -algebras and homological stability* – electronic Computational Homotopy Theory seminar, 16th January 2020.

*Spaces of manifolds* – Colloquium, Warwick, 11th October 2019.

- Spaces of manifolds* – Colloquium, Durham, 7th October 2019.
- Cohomology of moduli spaces* – Clay research conference, Oxford, 2nd October 2019.
- Two talks on *Cohomology of Torelli groups* – Automorphisms of Manifolds, Bonn, 2nd September 2019.
- Stable cohomology of diffeomorphism groups of 4-manifolds* – Four Manifolds: Confluence of High and Low Dimensions, Toronto, 9th July 2019.
- Cohomology of Torelli groups* – SYM 10 Years Old, Copenhagen, 27th June 2019.
- Homology of Hurwitz spaces and the Cohen–Lenstra heuristic for function fields (after Ellenberg, Venkatesh, and Westerland)* – Séminaire Bourbaki, Paris, 15th June 2019.
- Cohomology of Torelli groups* – Johnson homomorphisms and related topics, Tokyo, 15th May 2019.
- Cohomology of Torelli groups* – Geometry at infinity, Münster, 2nd April 2019.
- Tautological rings for smooth manifolds* – Geometry and Topology seminar, Málaga, 5th March 2019.
- Metastability in the homology of mapping class groups* – Geometry and Topology seminar, Imperial College London, 12th October 2018.
- Cellular  $E_k$ -algebras and homological stability* – INI, Cambridge, 7th August 2018.
- On Rognes’ connectivity conjecture* – Topologie, Oberwolfach, 12nd July 2018.
- Metastability in the homology of mapping class groups* – Manifolds, Groups, and Homotopy, Skye, 18th–23rd June 2018.
- On Rognes’ connectivity conjecture* –  $K$ -theory,  $A^1$ -homotopy and quadratic forms, Warwick, 15th–16th February 2018.
- Two talks on *Metastable cohomology of moduli spaces of Riemann surfaces* – Bavarian Geometry and Topology Meeting, Augsburg, 14th–15th December 2017.
- Tautological rings* – Groups, Manifolds, and  $K$ -theory, Münster, 9th June 2017.
- Stable twisted cohomology via scanning* – Johnson homomorphisms and related topics, Tokyo, 26th May 2017.
- $E_n$ -cells and applications* – Moduli and Traces, Copenhagen, 21st April 2017.
- Metastable cohomology of moduli spaces of Riemann surfaces* – British Mathematical Colloquium morning talk, Durham, 4th April 2017.
- Stable twisted cohomology via scanning* – OAC-manifolds, Oxford, 13th March 2016.
- Stable moduli spaces of manifolds* – Topology Seminar, QMUL, 11th March 2016.
- Cohomology of  $\text{Aut}(F_n)$  with twisted coefficients* – Topologie, Oberwolfach, 18th July 2016.
- $E_2$ -cells and homological stability* – Topology of manifolds, Lisbon, 27th June 2016.
- Realising characteristic numbers of fibre bundles* – Scottish Topology Seminar, Edinburgh, 11th March 2016.
- Characteristic classes of fibre bundles* – OAC-manifolds, Oxford, 22nd February 2016.
- Tautological rings for high-dimensional manifolds* – Warwick, 18th February 2016.
- Infinite loop spaces and positive scalar curvature* – Aspects of Homotopy Theory, Southampton, 15th December 2015.
- Moduli spaces of manifolds* – Colloquium, Columbia University, New York, 15th October 2015.
- Tautological rings for high-dimensional manifolds* – Stanford University, 6th October 2015.



*Tautological rings for high-dimensional manifolds* – Manifolds Unlocking Higher Structures, Clay Mathematical Institute Workshop, Oxford, 28th September-2nd October 2015.

*Moduli spaces of high-dimensional manifolds* – Moduli spaces and their applications, Liverpool, 21st September 2015.

*Moduli spaces of high-dimensional manifolds* – PIMS Symposium on the Geometry and Topology of Manifolds, Vancouver.

*Infinite loop spaces and positive scalar curvature* – PIMS Symposium on the Geometry and Topology of Manifolds, Vancouver.

*Tautological rings for high-dimensional manifolds* – Stockholm, 15th April 2015.

*Infinite loop spaces and positive scalar curvature* – Stockholm, 14th April 2015.

*Homological stability and abelianness* – Teichmüller Modular Groups: A Celebration of Nikolai Ivanov's 60th Birthday, Chicago, 21st March 2015.

*Cohomology of some diffeomorphism groups* – Southampton, 23th February 2015.

*Infinite loop spaces and positive scalar curvature* – Oxford, 19th January 2015.

*Cohomology of some diffeomorphism groups* – Aberdeen, 15th December 2014.

*Stable moduli spaces of high-dimensional manifolds* – Topologie; Oberwolfach, 15th September 2014.

*Stable moduli spaces of high-dimensional manifolds: applications* – ICM Satellite Conference on Algebraic Topology, Dalian, China, 10th August 2014.

*Cohomology of diffeomorphism groups* – Workshop on Algebraic Topology and its Applications, Dalian, China, 7th August 2014.

*Infinite loop spaces and positive scalar curvature* – Analysis and Topology in Interaction, Cortona, 16th June 2014.

*Moduli spaces of high-dimensional manifolds* – British Mathematical Colloquium, Queen Mary, London, 9th April 2014.

*Moduli spaces of high-dimensional manifolds* – Algebraic Topology, MSRI, 27th February 2014.

*Abelianisations of the mapping class groups of some highly-connected manifolds* – Rice, Houston, 17th February 2014.

*The tautological class  $\kappa_{-1}$*  – Topology seminar, Stanford, 11th February 2014.

*Homological stability of moduli spaces of manifolds* – Algebraic Topology, MSRI, 31st January 2014.

*Infinite loop spaces and positive scalar curvature* – Geometry seminar, UCL, 14th January 2014.

*Infinite loop spaces and positive scalar curvature* – Glasgow, 2nd December 2013.

*Stable moduli spaces of high-dimensional manifolds* – Manchester, 18th November 2013.

*The tautological class  $\kappa_{-1}$*  – Cohomology of the moduli space of curves, Zürich, 11th October 2013.

*Infinite loop spaces and positive scalar curvature* – British Topology Meeting, Aberdeen, 9th September 2013.

*Homological stability and moduli spaces* – Homology Stability Workshop, Copenhagen, 26th August 2013.

*The Picard groups of moduli spaces of  $r$ -Spin Riemann surfaces* – Séminaire de géométrie algébrique; Jussieu, Paris, 16th May 2013.

*Infinite loop spaces and positive scalar curvature* – Sheffield, 2nd May 2013.

- Infinite loop spaces and positive scalar curvature* – Stanford, 9th April 2013.
- Stable moduli spaces of high-dimensional manifolds* – Nottingham, 7th December 2012.
- Cohomology of the universal Picard varieties, and tautological relations* – Algebraic geometry seminar; Humboldt-Universität zu Berlin, 5th December 2012.
- The “Mumford conjecture” package, with applications* – SFB colloquium; Humboldt-Universität zu Berlin, 4th December 2012.
- The “Mumford conjecture” package, with applications* – GQT colloquium; Universiteit van Amsterdam, 16th November 2012.
- Stable moduli spaces of high-dimensional manifolds* – Oxford, 29th October 2012.
- El espacio de superficies en una variedad* – XIX Encuentro de Topología, La Coruña, 19th October 2012.
- Homological stability for moduli spaces of manifolds* – Topologie; Oberwolfach, 19th September 2012.
- Homological stability for moduli spaces of manifolds* – 27th British Topology Meeting; Cambridge, 6th September 2012.
- Stable moduli spaces of high-dimensional manifolds* – Fourth Arolla Conference on Algebraic Topology; Arolla, 23rd August 2012.
- Homological stability for moduli spaces of manifolds* – Algebraic Topology: Applications and New Directions; Stanford, 27th July 2012.
- Homological stability for moduli spaces of manifolds* – 17th NRW meeting; Münster, 4th May 2012.
- Stable moduli spaces of high-dimensional manifolds* – Universitat de Barcelona, 6th February 2012.
- Stable moduli spaces of high-dimensional manifolds* – MPIM Bonn, 23rd January 2012.
- Stable moduli spaces of high-dimensional manifolds* – Edinburgh, 26th October 2011.
- Stable moduli spaces of high-dimensional manifolds* – Glasgow, 24th October 2011.
- Universal Picard varieties and tautological relations* – ETH, Zürich, 7th October 2011.
- Stable moduli spaces of high-dimensional manifolds* – MIT, 26th September 2011.
- Picard group of the moduli space of  $r$ -Spin Riemann surfaces* – Riemann Surfaces; PCMI, Utah, 12th July 2011.
- Universal Picard varieties, extended mapping class groups, and tautological relations* – Stanford, 3rd May 2011.
- Two lectures on spaces of manifolds* – NTNU, Trondheim, 28th-29th October 2010.
- Monoids of moduli spaces of manifolds, II* – Topologie; Oberwolfach, 22nd September 2010.
- The Picard group of the moduli space of  $r$ -Spin curves* – Summer Topology Workshop; Stanford University, 5th August 2010.
- Resolutions of moduli spaces* – Stanford University, 13th April 2010.
- Resolutions of moduli spaces* – TTT meeting; University of Warwick, 23rd March 2010.
- Resolutions of moduli spaces and homology stability* – University of Copenhagen, 1st February 2010.
- Monoids of moduli spaces of manifolds* – 25th Nordic and 1st British–Nordic congress of Mathematicians; Oslo, 8th June 2009.
- Monoids of moduli spaces of manifolds* – Manifold Perspectives; Oberwolfach, 27th May 2009.

*Monoids of moduli spaces of manifolds* – University of Bonn, 12th May 2009.

*Homology of the stable non-orientable mapping class group* – Stanford University, 13th January 2009.

*Homology of the stable non-orientable mapping class group* – TTT meeting; University of Sheffield, 9th December 2008.

*Geometric delooping of cobordism categories* – Westfälischen Wilhelms-Universität Münster, 24th April 2008.

*Spaces of manifolds and tangential structures* – Moduli spaces; University of Bonn / Max Planck Institute, 10th January 2008.

*Embedded cobordism categories* – University of Copenhagen, 15th October 2007.

*Characteristic classes of bundles of non-orientable surfaces* – 22nd British Topology Meeting; Sheffield, 10th September 2007.

LOCAL  
SEMINARS

*Cohomology of Torelli groups* – Geometry seminar; University of Cambridge, 13th March 2019.

*Applications of cellular  $E_2$ -algebras* – Geometry seminar; University of Cambridge, 16th November 2016.

*Infinite loop spaces and positive scalar curvature* – Geometry seminar; University of Cambridge, 16th October 2013.

*Cohomology of braid groups and mapping class groups* – GDO programme; Newton Institute, University of Cambridge, 28th February 2013.

*The “Mumford conjecture” package, with applications* – Geometry seminar; University of Cambridge, 14th November 2012.

*The Picard group of the moduli space of  $r$ -Spin curves* – Algebra and Topology seminar; University of Copenhagen, 11th October 2010.

*Cohomology of moduli spaces* – Junior Geometry and Topology seminar; University of Oxford, 3rd June 2010.

*Arc complexes* – Junior Geometric Group Theory seminar; University of Oxford, 25th May 2010.

*Homology stability of spaces of surfaces* – Topology seminar; University of Oxford, 23rd November 2009.

*Monoids of moduli spaces of manifolds* – Geometry seminar; University of Oxford, 1st June 2009.

*Descent in algebra, geometry and topology* – Junior Geometry and Topology seminar; University of Oxford, October 2008.

*The Hopf invariant one problem* – Junior Geometry and Topology seminar; University of Oxford, March 2008.

*Poincaré–Hopf index theorem and the transfer* – Junior Geometry and Topology seminar; University of Oxford, October 2007.

*Classification of smooth manifolds up to cobordism* – Junior Geometry and Topology seminar; University of Oxford, February 2007.

EXTENDED  
VISITS

“Higher algebraic structures in algebra, topology and geometry”, Mittag-Leffler institute, Stockholm. 10th January–12th February 2022.

Sabbatical at Stanford University. 4th October–5th December 2015.

“Homotopy theory, manifolds, and field theories” programme, Hausdorff Centre for Mathematics, Bonn. 27th July–21st August 2015.

Research member at the “Algebraic Topology” programme, MSRI, Berkeley. 27th January-28th February 2014.

- CONFERENCES AND WORKSHOPS ATTENDED
- Spaces of manifolds: algebraic and geometric approaches* – Banff, 26th November-1st December 2023.
  - Panorama of Mathematics II* – Bonn, 4th-6th October 2023.
  - Centenaire de René Thom* – IHÉS, 20th-22nd September 2023.
  - Homotopy Theory* – Oberwolfach, 6th-12th August 2023.
  - Workshop on Homology of Configuration Spaces and related topics* – Paris, 15th-17th March 2023.
  - Ib Fest* – Copenhagen, 3rd-4th October 2022.
  - Clay research conference* – Oxford, 26th-30th September 2022.
  - DMV-Jahrestagung* – Berlin, 12th-16th September 2022.
  - Topologie* – Oberwolfach, 24th-28 July 2022.
  - ICM* – satellite event in Copenhagen, 6th-14th July 2022.
  - Twinned Conference on Homotopy Theory with Applications to Arithmetic and Geometry* – Bonn, 27th-30th June 2022.
  - Johnson homomorphisms and related topics* (online), 7th February 2022.
  - Johnson homomorphisms and related topics* (online), 23rd November 2021.
  - Cohomology of Arithmetic Groups* (online), 10th-15th October 2021.
  - The unity of mathematics: A conference in honour of Sir Michael Atiyah*, Cambridge 21st-23rd September 2021.
  - Operads, Calculus, and Homotopy theory methods in Topology* (online), 5th-7th July 2021.
  - Manifolds and K-Theory: the legacy of Andrew Ranicki* (organiser) (online), 21st-25th June 2021.
  - Opening Symposium* – Copenhagen Centre for Geometry and Topology (online), 27th August 2020.
  - Topologie* – Oberwolfach (online), 26th July-1 August 2020.
  - Manifolds and groups* – Oberwolfach (organiser), 9th-15th February 2020.
  - Clay research conference and workshops* – Oxford, 30th September-4th October 2019.
  - Automorphisms of Manifolds* – Bonn, 2nd-6th September 2019.
  - Four Manifolds: Confluence of High and Low Dimensions* – Toronto, 8th-12th July 2019.
  - SYM 10 Years Old* – Copenhagen, 24th-28th June 2019
  - Séminaire Bourbaki* – Paris, 15th June 2019.
  - Johnson homomorphisms and related topics* – Tokyo, 13th-17th May 2019.
  - Geometry at infinity* – Münster, 1st-5th April 2019.
  - Manifolds* – INI, Cambridge, 3rd-7th December 2018.
  - Derived algebraic geometry and chromatic homotopy theory* – INI, Cambridge, 24th-28th September 2018.
  - Equivariant and motivic homotopy theory* – INI, Cambridge, 13th-17th August 2018.
  - Topologie* – Oberwolfach, 2nd-6th July 2018.
  - Manifolds, Groups, and Homotopy* – Skye, 18th-23rd June 2018.

- OAC-manifolds* – Cambridge, 20th April 2018.
- K-theory,  $A^1$ -homotopy and quadratic forms*, Warwick, 12th-16th February 2018.
- Bavarian Geometry and Topology Meeting*, Augsburg, 14th-15th December 2017.
- OAC-manifolds* – Aberdeen, 5th October 2017.
- Algebraic Topology of Manifolds* – Oxford, 11th-15th September 2017.
- Analysis and Topology in Interaction* – Cortona, 26th-30th June 2017.
- Groups, Manifolds, and K-theory* – Münster, 5th-9th June 2017.
- Johnson homomorphisms and related topics* – Tokyo, 22nd-26th May 2017.
- Moduli and Traces* – Copenhagen, 20th-21st April 2017.
- British Mathematical Colloquium* – Durham, 3rd-6th April 2017.
- OAC-manifolds* – Oxford, 13th March 2017.
- European Autumn School in Topology* – Utrecht, September 19-23 2016.
- OAC-manifolds* – Cambridge, 9th September 2016.
- Topologie* – Oberwolfach, 17th-23rd July 2016.
- Young Topologists' Meeting* – Copenhagen, 4th-8th July 2016.
- Topology of manifolds* – Lisbon, 27th June-1st July 2016.
- OAC-manifolds* – Aberdeen, 9th May 2016.
- Scottish Topology Seminar* – Edinburgh, 11th March 2016.
- OAC-manifolds* – Oxford, 22nd February 2016.
- Aspects of Homotopy Theory* – Southampton, 14th–19th December 2015.
- Manifolds Unlocking Higher Structures* – Oxford, 28th September-2nd October 2015.
- Homotopy theory, manifolds, and field theories* – Bonn, 17th-21st August 2015.
- PIMS Symposium on the Geometry and Topology of Manifolds* – Vancouver, 29th June-5th July 2015.
- Introductory School: Homotopy theory, manifolds, and field theories* – Bonn, 4th-8th May 2015.
- Teichmüller Modular Groups* – Chicago, 20th-22nd March 2015.
- ICM Satellite Conference on Algebraic Topology* – Dalian, China, 3rd-13th August 2014.
- Manifolds, K-theory, and related topics* – Dubrovnik. 23rd-27th June 2014.
- Analysis and Topology in Interaction* – Cortona. 16th-20th June 2014.
- Surgery theory and its applications in geometry* – Münster. 9th-13th June 2014.
- British Mathematical Colloquium* – Queen Mary, London. 7th-10th April 2014.
- Introductory Workshop: Algebraic Topology* – MSRI, Berkeley. 27th-31st January 2014.
- Cohomology of the moduli space of curves* – Zürich. 10th-13th October 2013.
- British Topology Meeting 2013* – Aberdeen. 9th-11th September 2013.
- Homology Stability Workshop* – Copenhagen. 26th-30th August 2012.
- BMC 2013* – Sheffield. 25th-28th March 2013.
- Aspects of Topology* – Oxford. 17th-19th December 2012.
- XIX Encuentro de Topología* – La Coruña. 19th-21st October 2012.
- Topologie* – Oberwolfach. 17th-22nd September 2012.
- 27th British Topology Meeting* – Cambridge. 6th–8th September 2012.

*Fourth Arolla Conference on Algebraic Topology* – Arolla, Switzerland. 20th-26th August 2012.

*Algebraic Topology: Applications and New Directions* – Stanford. 23rd-27th July 2012.

*Homotopy Algebra and Its Applications* – Luminy. 25th-29th June 2012.

*17th NRW meeting* – Münster. 4th-5th May 2012.

*Riemann surfaces* – PCMI, Park City, Utah. 3rd-17th July 2011.

*The Kervaire invariant and stable homotopy theory* – ICMS, Edinburgh. 25th-29th April 2011.

*Topologie* – Oberwolfach. 19th-25th September 2010.

*25th British Topology Meeting* (organiser) – Oxford. 6th-9th September 2010.

*West Coast Algebraic Topology Summer School* (scientific committee) – Eugene, Oregon. 9th-15th August 2010.

*Summer Topology Workshop* – Stanford. 2nd-6th August 2010.

*24th British Topology Meeting* – Leicester. 14th-15th September 2009.

*25th Nordic and 1st British-Nordic congress of Mathematicians* – Oslo. 8th-11th June 2009.

*Manifold Perspectives* – Oberwolfach. 24th-30th May 2009.

*Third Arolla Conference on Algebraic Topology* – Arolla. 18th-24th August 2008.

*Homotopical Group Theory and Topological Algebraic Geometry* Conference and Workshop – Copenhagen / Bonn. 16th-27th June 2008.

*Topology in the Swiss Alps, Young Topologists' Meeting* – Le Châtelard. 26th-31st May 2008.

*Moduli spaces* Conference and Workshop – University of Bonn / Max Planck Institute. 1th-11th January 2008.

*22nd British Topology Meeting* – Sheffield. 10th-12th September 2007.

Workshop on Homological Algebra – Southampton. 8th-14th July 2007.

Postnikov Memorial Conference – Będlewo. 8th-14th July 2007.

Workshop on Stable Homotopy Theory – Strasbourg. 7th-11th May 2007.

*Journal of Topology* launch meeting – Oxford. 19th-21st March 2007.

MEETINGS  
ORGANISED

“Manifolds and K-Theory: the legacy of Andrew Ranicki”, ICMS Edinburgh, 2021. (with C. Barwick, D. Crowley, U. Tillmann)

“Cellular  $E_k$ -algebras”, Oberwolfach, 2021. (with A. Kupers, S. Galatius)

“Manifolds and Groups”, Oberwolfach, 2020. (with C. Löh, Th. Schick)

“Patterns in cohomology of moduli spaces”, Clay Research Conference Workshop, Oxford, 2019. (with S. Galatius)

“Manifolds”, Cambridge, 2018. (with D. Ayala, U. Tillmann, M. Weiss)

“Analysis and Topology in Interaction”, Cortona, 2017. (with W. Lück, R. Melrose, P. Piazza, Th. Schick)

OAC-manifolds meetings, 2016-2018. (with U. Tillmann, R. Hepworth)

25th British Topology Meeting, Oxford, 2010. (with J. Giansiracusa)

Scientific committee for “West Coast Algebraic Topology Summer School”, August 2010.

Copenhagen Topology seminar 2010-2012.

Oxford Junior Geometry & Topology Seminar 2007-2008.

SERVICE Undergraduate admissions – King’s College, Cambridge, 2012-2016.  
Undergraduate admissions – Jesus College, Oxford, 2006-2009.  
Computing committee – DPMMS, 2018–.  
Hiring committee – DPMMS, 2018, 2019.  
Hiring committee – Radboud University Nijmegen, 2020.  
Elector – Rouse Ball Professorship, 2022.  
LMS Publications committee, 2022–.