Ralph Martin Kaufmann

Department of Mathematics, Purdue University
150 N. University Street, West Lafayette, IN 47907–2067

Curriculum vitae

November 2024

Full Professor of Mathematics at Purdue University, West Lafayette, IN	since Aug 12
Full Professor of Physics and Astronomy (Courtesy) at Purdue	since Dec 19
Full Professor of Philosophy (Courtesy) at Purdue	since Dec 22

Previous Positions

Researcher, Max–Planck–Institute for Mathematics, Bonn	Jan 14 – Jun 14
Member Institute of Advanced Study, Princeton	Sep 13 – Dec 13
Member Institute of Advanced Study, Princeton	Sep 10 – Dec 10
Associate Professor with Tenure at Purdue University	Sep 07 – July 12
Tenure Track Assistant Professor at the University of Connecticut, Storrs, CT Tenure and promotion granted	Sep 04 – Sep 07
Tenure Track Assistant Professor at Oklahoma State University, Stillwater, OK	Sep 02 – Aug 04
Visiting Professor at the Max–Planck–Institute for Mathematics, Bonn, Germany (on leave from Oklahoma State University)	Jul 02 – Aug 03
Busemann Assistant Professor at the University of Southern California (USC), Los Angeles, CA	Sep 99 – Jul 02
Post–doctoral Fellow at the Max–Planck–Institute for Mathematics, Bonn, Germany	Jul 99 – Aug 99
Marie Curie Fellow of the European Union at the Institut des Hautes Études Scientifiques (IHÉS), Bures–sur–Yvette, France.	Jul 98 – Jun 99
Post–doctoral Fellow at the Max–Planck–Institute for Mathematics, Bonn, Germany	Aug 97 – Jun 98

Professional Degrees

Habilitation

Habilitation (special German post-doctoral degree) in the field of Mathematics from the University of Bonn, Bonn, Germany. "Habilitationsschrift": *Moduli spaces and Deformations*	Jun 04

Doctoral Degree

Doctoral studies in mathematics at the University of Bonn and the Max–Planck–Institute for Mathematics, Bonn, Germany.	May 94 – Jul 97
PhD: Graduated "summa cum laude" as Dr. rer. nat. (German doctorate of natural sciences) from the University of Bonn, Bonn, Germany. *The geometry of the moduli space of pointed curves, the tensor product in the theory of Frobenius manifolds and the explicit Künneth formula in quantum cohomology.* Advisor: Prof. Yu. I. Manin	Aug 97

Languages

German (native)
English (equivalent to native)
French (fluent)
Italian (basic)

University education

Studies of **physics and mathematics** at the University of Bonn, Bonn, Germany	Oct 88 – Apr 94
MS: Graduated "summa cum laude" with a Diplom (German M.S.) in physics	Apr 94
Thesis: *Path space decompositions for the Virasoro algebra and its Verma modules* Advisor: Prof. W. Nahm.	
BS: (Vordiplom) "summa cum laude" in mathematics (German B.S.)	Oct 90
BS: (Vordiplom) "summa cum laude" in physics (German B.S.)	Jul 90
Studies of **philosophy** at the University of Bonn, Bonn, Germany	Oct 91 – Oct 96
MA: Graduated "summa cum laude" with a Magister (German M.A.) in philosophy	Oct 96
Thesis: *Socrates' enigma of false identity-judgements in Plato's 'Theaetetus' and Gottlob Frege's theory of sense and reference as a possible answer.* Advisor: Prof. R. Stuhlmann-Laeisz.	

Honors and Fellowships

Prizes

-	"Spira Award for Excellence in Graduate Mentoring and Graduate Teaching."	Apr 16
–	"Heinrich–Hörlein–Gedächtnis–Preis" from the University of Bonn	Sep 98

Fellowships

1.	Fellow of the Hamburg Institute for Advanced Studies (HIAS)	Jan 26 – May 26
2.	Post-doctoral fellowship of the "Max–Planck–Gesellschaft"	Jul 99 – Aug 99
3.	Post-doctoral Marie–Curie–Fellowship of the European Union	Jul 98 – Jun 99
4.	Post-doctoral fellowship of the "Max–Planck–Gesellschaft"	Aug 97 – Jun 98
5.	Fellowship of the "Studienstiftung des deutschen Volkes", the German national merit scholarship program, for doctoral studies.	Jul 95 – Jun 97
6.	Fellowship of the "Max-Planck-Gesellschaft", for doctoral studies	May 94 – Jul 97
7.	Fellow of the Summer Student Programme at the European Organization for Nuclear Research (CERN), Geneva, Switzerland.	Jul 91 – Oct 91
8.	Fellowship of the "Studienstiftung des deutschen Volkes"	Apr 91 – Apr 94

Editorships

9.	Co–Chief editor and co–founder for the journal "Higher Structures"	since Jan 16
10.	Area editor in algebraic topology for the European Journal of Pure and Applied Math.	since Jan 08

Grants

1.	Center for Integrated Nanotechnologies (CINT) Research Initiative Program Summer research grant ($ 20,000) for Chris Bairnsfather to work with Alexander Cerjan at Sandia National Labs.	May 24 – Aug 24
2.	Seed grant: "Exploiting Topological Phases of Matter" from Purdue, PI ($50,000)	Sep 23 – Sep 24
3.	NSF grant: Conference: Algebraic structures in topology 2024, (CoPI) ($46,650)	Mar 24 – Feb 25
4.	Ross–Lynn Research Grant for Michael Monaco ($39,520)	Jun 23 – Jun 24
5.	Simons Collaboration grant ($42,000)	Sep 22 – Aug 27
6.	Humboldt fellowship for further research stay (cancelled due to Covid19)	Jun 21 – Aug 21
7.	Co-PI, Conference grant from Provost ($25,000) for the International Symposium on Quantum Science and Technology	Apr 19
8.	Simons Collaboration grant ($35,000)	Sep 14 – Aug 20
9.	Humboldt fellowship for further research stay	Jun 15 – Aug 15

10. Simons foundation fellowship ($104,000) Sep 13 – May 14
11. PRF research grant for my student Byeongho Lee ($15,750) Jun 13 – May 14
12. NSF research grant 1007846, ($158,000.00), PI "Floer theory in gauge theory and symplectic geometry" Sep 13 – Sep 14
13. PRF research grant for my student Ben Ward ($15,750) Jun 11 – May 12
14. Alexander von Humboldt Fellowship (approx. $35,000) for experienced researchers visiting the University of Hamburg, Germany (9 months in three years) May 10 – Sep 12
15. Grant of the K. Tschira Stiftung supporting visit of IHES Jul 10
16. NSF research grant "Operads and the topology of possibly singular spaces" as PI ($142,005) Aug 08 – Aug 13
17. Travel grant to work with R. Penner at USC from Midwest Topology Network ($1960) Nov 09
18. Large faculty research grant from the University of Connecticut ($5819) Jan 06 – Dec 07
19. Dean's incentive grant of the Oklahoma State University ($3000) Jun 04
20. NSF research grant "Mirror Symmetry and Frobenius Manifolds" as PI ($82,300) Jun 00 – Jun 03

Refereeing

Referee for Associations

- ▷ Referee for the Simons foundation.
- ▷ Referee for the European Research Council (ERC).
- ▷ Referee for The Royal Society, UK.
- ▷ Referee for Deutsche Forschungsgemeinschaft, Germany
- ▷ Referee for the King Fahd University of petroleum and minerals, Saudi Arabia
- ▷ Referee for the NSA
- ▷ Referee for the Belgian Fond de la recherche Scientifique.
- ▷ Referee for the Dutch National Research Council (NWO)
- ▷ Referee for the Canadian National Science and Engineering Research Council (NSERC)

Referee for Journals

- ▷ Acta Mathematica (Djursholm),
- ▷ Int. J. of Math. and Math. Sciences,
- ▷ Selecta Mathematica,
- ▷ Geometry & Topology,
- ▷ Journal of Geometry and Physics
- ▷ Journal of Topology
- ▷ Letters in Mathematical Physics
- ▷ Publ. IHES
- ▷ Homotopy, Homology and Applications
- ▷ Algebraic & Geometric Topology
- ▷ Compositio Math.
- ▷ J. of K-theory
- ▷ Annales de l'Institut Herni Poincare
- ▷ Forum Mathematicum
- ▷ Izvestia
- ▷ Commun. Math. Phys.,
- ▷ Int. Math. Res. Notices
- ▷ Manuscripta Mathematica,
- ▷ Advances in Mathematics
- ▷ Crelle's Journal
- ▷ Journal of Noncommutative Geometry
- ▷ SIGMA
- ▷ Transfomration groups
- ▷ Duke Math. Journal
- ▷ Algebra and Number Theory
- ▷ J. of Algebra
- ▷ Proc. of the AMS
- ▷ Nucl. Phys. B.
- ▷ Communications in Contemp. Math.
- ▷ Several conference volumes

Reviews

- ▷ Reviewer for the American Mathematical Society (AMS)

Organization of Professional Meetings and Programs

1. "Combinatorics, Resurgence and Algebraic Geometry in Quantum Field Theory" Aug 24
   1–month Activity at Max–Planck–Institute for Mathematics, Bonn, Germany
   Including a 1-week workshop. Together with Michael Borinsky (ETH),
   Karen Yeats (U.Waterloo), Dirk Kreimer (HU Berlin) and Christian Blohmann (MPIM).
2. Conference "Algebraic Structures in Topology". San Juan, Puerto Rico Jun 24
   together with Mona Merling, Jeremy Miller and Manuel Rivera (main organizer)
3. AMS Special Session on Geometry and Topology of Quantum Phases of Matter, May 24
   AMS Spring 2024 Western Sectional Meeting, San Francisco
   together with Markus Pflaum.
4. Midwest Topology Seminar Spring 2023, Purdue, West Lafayette, IN Apr 23
   together with Manuel Rivera and Jeremy Miller of Purdue
5. AMS Spring Central Sectional Meeting at Purdue (moved online) Mar 22
   together with Donatella Danielli-Garofalo, E. Birgit Kaufmann,
   Jie Shen and Bernd Ulrich.
6. AMS Special session on Higher Structures in Topology, Geometry and Physics Mar 22
   together with M. Markl and S. Voronov
7. International Symposium on Quantum Science and Technology, West Lafayette Apr 19
   together with A. Boltasseva, C. Greene, S. Kais, E. B. Kaufmann,
   M. Manfra, V. Shalaev and A. Weiner.
8. AMS Special Session on Topological Mathematical Physics Apr 17
   together with E. Birgit Kaufmann of Purdue and Emil Prodan of Yeshiva
9. AMS Special Session on Topology and Physics Oct 16
   together with Alexander Voronov at the U. of Minnesota.
10. Three months activity on "Higher structures in geometry and physics" Jan 16 – Mar 16
    at the Max–Planck–Institute in Bonn
    together with M. Batanin, C. Blohmann and M. Markl , P. Teichner and Yu. I. Manin
    - ▷ Opening conference for the program on Higher Strutrues, MPI Bonn Jan 16
    - ▷ Conference Workshop on Homotopy Type Theory Feb 16
      with lectures by Vladimir Voevodsky
    - ▷ Closing conference for the program on Higher Strutrues, MPI Bonn Jan 16
11. Midwest Topology Seminar Fall 2016, Purdue, West Lafayette, IN Oct 16
    together with David Gepner, Jeremy Miller and Jim McClure of Purdue
12. Midwest Topology Seminar Spring 2012, Purdue, West Lafayette, IN Apr 12
    together with Jim McClure of Purdue
13. AMS Special Session on Topology, Geometry and Physics Nov 10
    at Notre Dame, South Bend, IN together with Stephan Stolz of Notre Dame
14. AMS Special Session on Algebraic Geometry and Moduli Spaces in Storrs, CT Oct 06
    together with Dan Abramovich of Brown University

Service Activities Purdue University

University level

▷ University Promotions Panel A	Jun 23 – Jun 26
▷ Visual Arts and Design Committee	Mar 23 –
▷ University Senate	Fall 16 – Spr 21
▷ Faculty Affairs Committee (FAC)	Fall 18 – Spr 21
▷ Educational Policy Committee (EPC)	Fall 16 – Spr 18
▷ Chair of Educational Policy Committee	Fall 16 – Spr 18
▷ EPC Subcommittees on academic integrity and attendance	Fall 15 – Spr 16
▷ Co-Chair of Committee for academic rigor	Fall 16 – Spr 18
▷ Committee for academic integrity	Fall 16 – Spr 18
▷ Senate Advisory Committee	Fall 16 – Spr 18
▷ Campus Grievance Committee	Fall 09 – Spr 10

College level

▷ Head review committee for mathematics, Chair	Spr 25
▷ sQIS Grad Studies committee	Spr 25
▷ Faculty Council, College of Science	Fall 23 – Spr 26
▷ Chair	Fall 24 – Spr 25
▷ Faculty Council, College of Science	Fall 18 – Spr 21
▷ Chair of interdepartmental Quantum Information Science search committee	Fall 21 – Spr 22
▷ Interdepartmental search committee in Quantum Information Science	Fall 18 – Spr 19
	Fall 22 – Spr 23
	Fall 23 – Spr 24
▷ Undergraduate Curriculum Committee, College of Science	Fall 19 – Spr 21
▷ Undergraduate Curriculum Committee, College of Science	Fall 23 – Spr 26
▷ Dean of science search committee	Fall 16 – Spr 17
▷ Dean's task force on hiring	Fall 15

Department level

▷ Hiring Committee	Fall 24 – Spr 25
▷ Chair of Promotions committee	Sp 22 – Spr 23
▷ Promotions committee	Fall 20 – Spr 21
	Fall 15
▷ Chair of Head search committee	Fall 19 – Spr 20
▷ Chair of Awards committee	Fall 19 – Spr 24
▷ Personnel committee	Fall 14 – Spr 15
	Fall 12 – Spr 13
▷ Colloquium Chair	Fall 14 – Spr 15
▷ Organization of the Topology seminar	Spr 08 – Spr 10
	Fall 11 – Spr 13
	Fall 15
▷ Graduate Committee	Fall 08 – Spr 13

Service Activities at the University of Connecticut

▷ Colloquium Chair	Fall 05 – Spr 07
▷ Undergraduate Committee	Fall 04 – Spr 07
Subcommittee chair for course rotation	Spr 06
Subcommittee for course syllabi	Spr 06
▷ Ad hoc committee for strategic planning (interdiscipliary, equipment)	Spr 06
▷ Ad hoc committee for hiring plan	Spr 06
▷ Ad hoc committee for a math–physics major	Fall 06
▷ Computer Committee	Fall 04 – Spr 06
▷ Composing and holding a German Language Exam for the Mathematics department foreign language requirement	Spr 06

Service Activities at Oklahoma State University

▷ Hiring Committee	Fall 03

Student Outreach and Synergetic Activities

▷ Graduate Student Recruiting Panel. Mar	25
▷ Undergraduate Science Scholars Mentor	Sep 23 – present
▷ Snack and Chat at the invitation of the College of Science Student Council, Purdue	Oct 22
▷ Judge for the 2022 Undergraduate Research and Poster Symposium at Purdue	Apr 22
▷ Panelist, Women in Science Program, for Careers in Science, Purdue	Oct 21
▷ Meet and Greet at the invitation of the College of Science Student Council, Purdue	Oct 21
▷ Judge for the 2017 Undergraduate Research and Poster Symposium at Purdue	Apr 17
▷ Judge for the 2012 Undergraduate Research and Poster Symposium at Purdue	Apr 12
▷ Judge for the 2011 Undergraduate Research and Poster Symposium at Purdue	Apr 11
▷ Judge for the 2010 Undergraduate Research and Poster Symposium at Purdue	Apr 10
▷ Giving a radio interview on the Pulitzer prize winning play "Proof" and mathematics	May 02
▷ Supervising a student in mathematics for an undergraduate symposium	Mar 02
▷ Endorsement as scientific advisor of a proposal for a Sloan–Film–Prize at the USC School of Cinema and Television awarded $15,000	Mar 01

Other service

▷ Humboldtian on Campus	since Spr 2017
▷ Faculty Fellow for Deans' Halls Scholarship students at the University of Southern California (USC)	Oct 01 – Aug 02
▷ USC "Ambassador" (these are the faculty contacts of the president)	Oct 00 – Aug 02

Advisees and Mentoring

Faculty Mentor

1. Jeremy Miller
2. Shawn Cui
3. Sam Nariman
4. Manuel Rivera
5. Eric Samperton

Mentoring Post-Docs

1. Alastair Hamilton at the University of Connecticut. Algebraic geometry.
   Tenured at Texas-Tech.
2. Javier Zuniga. Algebraic geometry/moduli spaces. Tenured in Lima, Peru
3. Lizhen Qin. Symplectic geometry. Tenure-track in Nanjin University, China.
4. Heather Lee. Symplectic geometry, mirror symmetry. IAS, Post-doc at U. of Wash.
5. Dan Li. Noncommutative geometry/mathematical physics. Industry.
   joint with E. B. Kaufmann.
6. Arun Debray, mathematical physics/homotopy theory. Tenure Track at U. of Kentucky.

PhD Students graduated

1. Rachel Schwell. "Operads, Polytopes and the A_∞–Deligne Conjecture".
   Graduated with PhD from Univ. of Connecticut May 07
   Currently tenured Full Professor Central Connecticut State

2. David Pham. "G–Frobenius Algebras, Twisting and the Drinfel'd Double"
   Graduated with PhD from Purdue May 09
   Currently tenure–track SUNY QCC

3. Benjamin Ward. "Cohomology of operad algebras and Deligne's Conjecture"
   Graduated with PhD from Purdue May 13
   Purdue Research Foundation fellowship for academic year 11/12.
   1st position: 3 year post-doc at the Simons center Stony Brook.
   Currently Associate Professor Bowling Green State University in Ohio.

4. Byeongho Lee. "G-Frobenius Manifolds"
   Graduated with PhD from Purdue May 15
   Bildsland fellowship for 13/14
   1st position: Post-doc National Institute for Mathematical Sciences, Korea

5. Yu Tsumura. "A 2-Categorical Extension of the Reshetikhin-Turaev theory"
   Graduated with PhD from Purdue May 15
   Gerald R. MacLane award
   1st position: Post-Doc position at Ohio State

6. Yongheng Zhang. "Permutahedra, Configuration Spaces and Spineless Cacti"
   Graduated with PhD from Purdue May 15
   Excellence in Teaching Award, Teaching Academy Graduate Teaching Awards
   1st position: Post-Doc position at Amherst College
   also current affiliation as Senior Lecturer in Mathematics.

7. Jake Noparstak. "Flows on Teichmüller and Moduli Spaces"
Graduated with PhD from Purdue Aug 15
   Excellence in Teaching Award, Teaching Academy Graduate Teaching Awards
   1st position: Post-doc Marquette University also
   current affiliation as Teaching Assistant Professor

8. Jason Lucas. "Connecting Models of Configuration Spaces: From Double Loops to Strings" Aug 16
   Department of Mathematics Excellence in Teaching Award,.
   Teaching Academy Graduate Teaching Awards
   Tenure track offer East Central University, OK (declined),
   Post-doc offer UConn, (declined), industry offer (Accpted): Metron.

9. John Abou-Rached. "Counting Closed Geodesics In Orbit Closures"
   Graduated with PhD from Purdue May 23
   1st position: post-doc SUNY Binghamton

10. Michael Monaco. "A Plethysm Formulation for Operadic Structures and its Relationship to Plus Constructions"
    Graduated with PhD from Purdue May 24
    Ross–Lynn fellowship.
    1st position: Continuing at Purdue

11. Yang Mo. "On Bi-/Hopf algebras and their Applications to Renomalization Problems and Operadic algebras"
    Graduated with PhD from Purdue Aug 24
    1st position: Post-doc at Gemological Institute of America, Carlsbad CA.

Current students at Purdue

12. Chris Bairnsfather (Mathematical Physics)
    2024 Dept. of Mathematics Excellence in Teaching Award.

13. Mohamad Ibrahim Ab Mousa (Physics/quantum phases and computing)

Master Students

▷ Abhijnan Rej, "C*-algebra approach to quantum SU(2) groups."
Graduated with M.S. from Univ. of Connecticut May 05

▷ Colin Ford (Mathematical Physics) Graduated with M.S. from Purdue Dec 18

Undergraduate Honors Students

▷ Brian Bishop, Honors Thesis: "Hyperbolic Geometry and special relativity"
Graduated B.S. from Univ. of Connecticut May 06

Invitations to Research Institutes and for Prolonged Stays at Universities

1.	Hamburg Institute for Advanced Study, Hamburg, Germany	Jan 26 – May 26
2.	Institut des Hautes Études Scientifiques (IHÉS), Bures-sur-Yvette, France	Jun 25 – Jul 25
3.	Max–Planck–Institute for Mathematics (MPI), Bonn, Germany	Dec 24
4.	Max–Planck–Institute for Mathematics (MPI), Bonn, Germany	Aug 24
5.	Simons Center for Geomety and Physics, Stony Brook, NY	Jul 24
6.	Université Côte d'Azur, Nice, France	June 23
7.	Max–Planck–Institute for Mathematics (MPI), Bonn, Germany	Jun 22 – Jul 22
8.	Humboldt Universität Berlin, Germany	May 22
9.	CRM, Barcelona, Spain	May 22
10.	Max–Planck–Institute for Mathematics (MPI), Bonn, Germany	Jun 19 – Jul 19
11.	Čech Academy of Sciences, Prague	May 19 & Aug 19
12.	Univ. del. Pacifico, Lima, Peru	Oct 18
13.	Institut des Hautes Études Scientifiques (IHÉS), Bures-sur-Yvette, France	May 18 – Jul 18
14.	Université Sophia Antipolis, Nice, France	May 18
15.	IBS Center for Geometry and Physics, Pohang, Korea	Apr 18
16.	Institute for Advanced Study (IAS) Princeton	Mar 18
17.	Hausdoff Institute for Mathematics, Bonn, Germany	Feb 18 – Mar 18
18.	Hausdoff Institute for Mathematics, Bonn, Germany	Jul 17 – Aug 17
19.	Kolleg Mathematik und Physik Berlin, Berlin, Germany	Jun 17 – Jul 17
20.	Universität Göttingen, Germany	May 17
21.	Université Sophia Antipolis, Nice, France	May 17
22.	Institute for Advanced Study (IAS) Princeton, NJ	Mar 17 – Apr 17
23.	Université Sophia Antipolis, Nice, France	May 17
24.	University of Barcelona, Spain	May 16
25.	Simons Center for Geomety and Physics, Stony Brook, NY	Apr 16
26.	Max–Planck–Institute for Mathematics (MPI), Bonn, Germany	Jan 16 – Jul 16
27.	Humboldt Universität Berlin, Germany	Jun 15 – Aug 15
28.	Simons Center, Stony Brook, NY	Mar 15
29.	Institut des Hautes Études Scientifiques (IHÉS), Bures-sur-Yvette, France	Jul 14 – Aug 14
30.	Max–Planck–Institute for Mathematics (MPI), Bonn, Germany	Jan 14 – Jun 14
31.	University of Barcelona, Spain	May 14
32.	Université Sophia Antipolis, Nice, France	May 12
33.	Institute for Advanced Study (IAS) Princeton (Member), NJ	Sep 13 – Dec 13
34.	University of Barcelona, Spain	Jul 13
35.	Humboldt University Berlin, Germany	Jun 13
36.	Max–Planck–Institute for Mathematics (MPI), Bonn, Germany	May 13 – Aug 13
37.	Newton Institute, Cambridge, UK	Mar 13
38.	University of Hamburg, Germany	May 12 – Sep 12
39.	Max–Planck–Institute for Mathematics (MPI), Bonn, Germany	Jul 11
40.	Institut des Hautes Études Scientifiques (IHÉS), Bures-sur-Yvette, France	Jun 11
41.	Center for Quantum Geometry of Moduli Spaces (QGM), Aarhus, Denmark	May 11
42.	Institute for Advanced Study (IAS) Princeton (Member), NJ	Sep 10 – Dec 10
43.	University of Hamburg, Germany	May 10 – Sep 10
44.	Institut des Hautes Études Scientifiques (IHÉS), Bures-sur-Yvette, France	Jul 10
45.	Max–Planck–Institute for Mathematics (MPI), Bonn, Germany	Jun 10
46.	Center for the topology and quantization of moduli spaces (CTQM) Aarhus, Denmark	June 09 – Jul 09

47. MSRI, Berkeley, CA — Apr 09 – May 09
48. Max–Planck–Institute for Mathematics (MPI), Bonn, Germany — July 08 – Aug 08
49. Institut des Hautes Études Scientifiques (IHÉS), Bures-sur-Yvette, France — May 08 – July 08
50. Mittag-Leffler Institute of the Royal Swedish Academy, Stockholm, Sweden — Jun 07
51. Max–Planck–Institute for Mathematics (MPI), Bonn, Germany — May 07 – Aug 07
52. Mittag-Leffler Institute of the Royal Swedish Academy, Stockholm, Sweden — Nov 06
53. Max–Planck–Institute for Mathematics (MPI), Bonn, Germany — Aug 06
54. MSRI, Berkeley, CA — May 06
55. Max–Planck–Institute for Mathematics (MPI), Bonn, Germany — Jun 05 – Aug 05
56. University of Stockholm, Stockholm, Sweden — May 05
57. Institut des Hautes Études Scientifiques (IHÉS), Bures-sur-Yvette, France — Mar 03 – Apr 03
58. Max–Planck–Institute for Mathematics (MPI), Bonn, Germany — Jul 04 – Aug 04
59. Institut des Hautes Études Scientifiques (IHÉS), Bures-sur-Yvette, France — May 04 – Jun 04
60. Graduiertenkolleg University of Münster, Germany — Feb 03
61. Humboldt–University, Berlin, Germany — Dec 02
62. IHÉS, Bures-sur-Yvette, France — May 02 – Jun 02
63. IHÉS, Bures-sur-Yvette, France — Jul 01 – Aug 01
64. Institute for Advanced Study (IAS), Princeton, NJ — Dec 01
65. MPI, Bonn, Germany — Jun 01 – Jul 01
66. MPI, Bonn, Germany — Jun 00 – Aug 00
67. Université Joseph Fourier, Grenoble, France — May 99
68. University of Salamanca, Salamanca, Spain — Apr 99

Invitations for guest stays-Liberal Arts

69. Stiftung Insel Homborich, Neuss, Germany — Jun 23
70. Villa Massimo, Rom, Italy — Apr 14

Invited National and International Conferences

1. Midwest Topology Seminar Spring 25, University of Notre Dame, South Bend, IN — Mar 25
   Mathematical Interactions. A personal collage
2. Higher Structures in Prague, Czech Academy of Sciences, Prague, Czech Republic — Oct 24
   Bimodules and operad type theories
3. Homotopical Algebra and Higher Structures, Oberwolfach, Germany — Aug 24
   New Developments in Feynman Categories and Hopf algebras.
4. QuaSy-Con II. Notre Dame University, Notre Dame, IN — May 24
   Twisting geometrically, algebraically and categorically
5. Teichmüller Theory: Classical, Higher, Super and Quantum, Oberwolfach, Germany — Aug 23
   Session chair
6. Hopf Algebroids And Noncommutative Geometry. Queen Mary University, London, UK — Jul 23
   From Feynman categories to bi- and Hopf algebroids
7. GAP XIV, Institut Henri Ponicaré, Paris, France — May 23
   Higher operations from algebra and geometry
8. Homotopical days, Nice, France — Dec 22
   Graphs and moduli spaces from a Feynman categorical perspective.
9. Workshop on Higher Structures, Penn State, College Park, PA
   Algebraic structures on the Tate-Hochschild complex
10. Maurice Auslander Conference, Woods Hole, MA — Oct 22
    A categorical perspective on representations of algebras, modules and associated spaces.
11. Higher Structures in Prague, Institute of Mathematics Czech Academy of Sciences — Sep 22
    Plus Constructions
12. Algebraic structures in topology in San Juan, Puerto Rico — May 22
    Operations on Hochschild complexes
13. Graph Complexes and Quantum Field Theory, Berlin — Mar 22
    Cubical Feynman categories, cubical complexes and spines
14. Manin 85. Algebra, Geometry and Physics: a mathematical mosaic, MPI Bonn — Mar 22
    Algebra, Geometry and Physics: From Feynman graphs to moduli spaces
15. Workshop Homotopical Algebra and Higher Structures, Oberwolfach — Sep 21
    Derived Decorated Feynman categories
16. Session on Algebraic and categorical structures in geometry and topology — Sep 21
    Latin American Congress of Mathematics. Montevideo Uruguay (vitrual)
    Hopf and bialgebras in Algebra, Topology, and Physics
17. Segundo Congreso Internacional Multidisciplinario de Matemática — Mar 21
    Univ. Nat. de Ingenieria, Lima, Peru
    From flow-charts and combinatorics to algebra and geometry.
18. Opening Workshop for Higher Homotopical Structures CRM, Barcelona, Spain — Feb 21
    Progress in operad-like theories with a focus on Feynman categories
19. AIM workshop Mathematics of topological insulators, New York, NY (moved online) — Dec 20
20. Conference in Honor of the 60th birthdays of M. Markl and M. Batanin (postponed) — Nov 20
    at the Czech Academy of Sciences, Prague, Czech Republic.
21. Algebraic structures in Perturbative Quantum Field Theory — Nov 20
    at IHES, Paris, France
22. Conference on Topological and Geometric Recursion in Miami — Feb 20
    Prequels and possible sequels to Topological Recursion
23. AMS special session on Quantum Theory of Matter meets — Jan 20
    Noncommutative Geometry and Topology in Denver.
    Topological invariants and insulators

24. Emei conference on Deformation theory and homotopy algebra in Southwest Jiaotong University-Emei — May 19
25. Combinatorial Categories, Osnabrück, Germany — Nov 18
FI and Feynman categories - Encoding (combinatorial) structures and their refinements
26. Summer School on Structures in Local Quantum Field Theory, Les Houches, France — Jun 18
Feynman categories and applications in geometry, number theory and physics
27. Maurice Auslander International Conference 2018, Woods Hole, MA — Apr 18
Feynman categories and Moduli Spaces
28. Workshop:Workshop: Amplitudes and Periods, Hausdorff Institute, Bonn, Germany — Feb 18
Graph Hopf algebras and their framework
29. Workshop: K-theory in topology and non commutative geometry, Hausdorff Institute, Bonn, Germany — Aug 17
K-theoretical and noncommutative methods for topological properties of materials
30. Topology Ecuador, Galapagos Islands — Aug 17
Moduli Spaces and Feynman categories
31. KMPB–Day, Humboldt University, Berlin — Jul 17
Graphs, cubical complexes and Connes-Kreimer-type co- products.
32. Humboldt Colloquium "Global Research in the 21st Century: Perspectives of the U.S. Humboldt Network", Washington DC. — Mar 17
Abstract Structures in Mathematics and their Applications
33. Midwest Topology Seminar, Purdue University, West Lafayette, IN — Sep 16
Feynman categories
34. Higher Structures in Geometry and Physics at MATRIX, Melbourne Australia — Jun 16
Lecture series on Feynman categories
35. Workshop on noncommutative manifolds, Fields Institute, Toronto, Canada — Mar 15
Condensed matter, C^*-geometry and topological invariants
36. Homotopical Algebra Summer Days, Barcelona, Spain — Jul 14
Feynman categories and Hopf algebras
37. Higher Geometric Structures along the Lower Rhine V — Jun 14
A 2–categorical interpretation of Hochschild actions and string topology
Feynman categories and Hopf algebras
38. Geometry, Topology and Physics workshop, Pittsburgh — May 14
The geometry and algebra of master equations, BV operators and Feynman transforms.
39. AMS Sectional Meeting Knoxville special session on Singularities and Physics — Mar 14
Singularities, swallowtails and topological properties in families of Hamiltonians
40. Oberwolfach Workshop Batalin-Vilkovisky Algebras, Operads, and Hopf Algebroids — Feb 14
BV and Feynman categories
41. Algebra Geometry and combinatorics day, Algecom 7, Purdue, West Lafayette, IN — Oct 12
Graphs, algebras and cohomology
42. Mapping Class Groups and Quantum Topology, Strassbourg, France — Jun 12
Categorified correlators
43. The 3rd Workshop On Combinatorics Of Moduli Spaces, Cluster Algebras, Knots, And Topological Recursion, Moscow, Russia *Categorified correlators* — May 12
44. NCGOA12 Conformal Field theory and von Neumann Algebras Vanderbilt University, Nashville, TN — May 12
CFT from the arc point of view and structural relations to planar algebras
45. Noncommutative Algebraic Geometry and its Applications to Physics, Lorentz Center, Leiden, The Netherlands — Mar 12
(Non-)commutative geometry of wire network graphs

46. Quantum Theory and Symmetries, Prague — Aug 11
On the CY-LG correspondence for (0,2) toric models

47. Workshop Teichmüller Theory, Oberwolfach, Germany — Nov 10
Moduli Spaces, Foliations and Algebraic Structures

48. Workshop Operads and Homotopy Theory, Lille, France — Aug 10
The (odd) operadic origin of BV.

49. ESF conference on Teichmüller Theory and its Interactions in Mathematics and Physics, Bellaterra, Spain. *The Foliation Approach to String Interactions* — Jun 10

50. 2nd Workshop on Combinatorics of Moduli Spaces, Cluster Algebras and Symplectic Invariants, Moscow, Russia — May 10
Moduli spaces, real blow ups and BV operators.

51. Integrable Systems and Quantum Symmetries, Czech Technical University Prague, Czech Republic. *Landau Ginzburg Models and C/O equations.* — Jun 09

52. Geometry and Physics of the Landau-Ginzburg Model, Clay Institue, Boston, MA — Jan 09
Orbifold Landau-Ginzburg Theories, Mirror Symmetry and Frobenius Structures

53. Algebraic and Geometric Deformation Spaces — Aug 08
Max–Planck (MPI) & Hausdorff Institutes for Mathematics, Bonn, Germany.
Correlators and Deformations

54. Combinatorics of moduli spaces, Hurwitz numbers, and cluster algebras, Moscow, Russia — Jun 08
Operad structures on combinatorial moduli spaces and their actions

55. Conference on Moduli Spaces, MPIM & University of Bonn, Bonn, Germany — Jan 08
Moduli spaces in algebra and topology: operadic aspects

56. Hochschild and Cyclic (co-)homology and Applications to Geometry and Physics, Max–Planck Institute & Hausdorff Institute for Mathematics, Bonn, Germany. — Jul 07
Moduli space action on the Hochschild co-chains

57. Arbeitstagung, MPI & Univ. Bonn, Bonn Germany — Jun 07
Stringy K–theory

58. Postnikov Memorial Conference, Bedlewo, Poland — Jun 07
Homotopy Theory and Moduli Spaces.

59. VBAC 07, Principal Bundles, Gerbes and Stacks, Bad Honnef, Germany — Jun 07
Gerbes, Stringy K-theory and the Drinfel'd double

60. International Colloquium on Integrable Systems, Prag, Czech Repulic — Jun 07
String Digrammatics

61. Workshop on Quantum Cohomology of Stacks, IHP, Paris, France — Feb 07
The global orbifold approach to stringy geometry.

62. AMS Special session on Homotopy Theory of Compactified Moduli Spaces, Storrs, CT — Oct 06
Moduli Space Actions on the Hochschild co-chains of a Frobenius algebra.

63. Satellite conference to the ICM on Algebraic Geometry, Segovia, Spain — Aug 06
Stringy phenomena for orbifolds

64. AMS Special Session on Algebraic Geometry Motivated by Physics, Eugene, OR — Nov 05
Moduli spaces, Cells and Operadic Actions

65. AMS Special Session on Algebraic Topology of Moduli Spaces, Eugene, OR — Nov 05
Stringy Orbifold Structures

66. Joint Meeting of AMS, DMV, and ÖMG, Mainz, Germany — Jun 05
Stringy K-theory and stringy (quantum) cohomology for varieties with a finite group action.

67. AMS Special Session on Homotopy Theory, Newark, DE — Apr 05
Cell models for operads and actions on the Hochschild complex

68. School and Workshop on Gromov-Witten Invariants, Trieste, Italy — Jun 04
G-cohomological field theories and Gromov Witten Invariants for Global Orbifolds

69. AMS Special Session on Homotopical Physics, Lawrenceville, NJ — Apr 04
Arc, String Topology and Deligne's Conjecture

70. Applications of Arithmetic Degeneration of Moduli, Irvine, CA — May 03
Degenerations and the moduli space of pointed admissible G–covers.

71. AMS Special Session on Gromov-Witten Theory of Spin Curves and Orbifolds, San Francisco, CA — May 03
On Gromov–Witten invariants for global quotients

72. Cohomology of Moduli Spaces, Amsterdam, Netherlands, *Arc Operads, their Batalin Vilkovisky structure, relations to string topology and Connes-Kreimer's Hopf algebra* — Dec 02

73. AMS Special Session on the Hilbert Scheme, Boston, MA — Oct 02
Symmetric products, Symmetric group Frobenius algebras and Discrete Torsion

74. ICM 2002 Satellite conference on Stringy orbifolds, Chengdu, China — Aug 02
Orbifolding, second quantization and discrete torsion

75. Workshop on Frobenius manifolds, singularities and quantum cohomology, Max–Planck–Institute for Mathematics, Bonn, Germany. — Jul 02
Orbifolding and second quantization

76. Workshop on Algebraic Geomerty and Physics 2002, Genova, Italy — Jul 02
Second quantized Frobenius algebras

77. Conference on Gromov–Witten Invariants and Integrable Systems, Institute for Advanced Study, Princeton, NJ — Dec 01
Orbifolding Frobenius manifolds

78. Graph Theory: Confluences in Molecular Biology and the Physical Sciences, Oceanographic Institution, Woods Hole, MA — Nov 01
Operads of arc families

79. Mathematical Aspects of Orbifold String Theory, University of Wisconsin, Madison, WI — May 01
Orbifold Frobenius Algebras, Cobordisms and Monodromies

80. Workshop in Algebraic Geometry and Physics 00, ICTP, Trieste, Italy — Oct 00
Orbifolding Frobenius Manifolds

81. Southern California Algebraic Geometry Seminar, UC Riverside, Riverside, CA — May 00
Frobenius Manifolds: Basic constructions and operations

82. Meeting Frobenius manifolds, quantum cohomology and related topics, Milano, Italy — Nov 99
Tensor products of Frobenius manifolds

83. Conference of the School of Differential Geometry, ICTP, Trieste, Italy — Apr 99
Products of Frobenius manifolds

84. Europroj 98 conference, Toledo, Spain, *Frobenius manifolds and their products* — Sep 98

85. ICM 1998 Satellite Conference in Algebraic and Arithmetic Geometry, Essen, Germany — Aug 98
Frobenius manifolds and their products

86. Workshop on Voevodsky's proof of the Milnor conjecture, Oberwolfach, Germany — Mar 98
Main properties of the triangulated category of motives

87. Workshop on Reflection Groups and Applications, SISSA, Trieste, Italy Jan 98
The tensor product in the theory of Frobenius manifolds
88. Presentation for the scientific review committee, Max–Planck–Institute, Bonn, Germany Oct 97
The moduli space of curves and quantum cohomology
89. Workshop on Mirror Symmetry, Oberwolfach, Germany Oct 97
Enumeration of rational curves via torus actions
90. 1997 Summer Workshop on Algebraic Geometry and Physics, Salamanca, Spain Sep 97
The tensor product in the theory of Frobenius manifolds

Seminar and Colloquium talks

1. Center for Integrated Nano Technologies colloquium, Sandia Natl. Labs, Albuquerque, NM Apr 25
2. Topology Seminar, Purdue, West Lafayette, IN Nov 24
3. Physical Mathematics Seminar, MPIM, Bonn, Germany Aug 24
4. Topology Seminar, University of Colorado, Boulder, CO Apr 24
5. Colloquium, University of New Mexico, Albuquerque, NM Apr 24
6. Algebra Seminar, Notre Dame, Notre Dame, IN Mar 24
7. Topology Seminar, University of Minnesota, Minneapolis Mar 24
8. Noncommutative Geometry Seminar, Northwestern, Evanston, IL Jan 24
9. Czech Academy of Sciences, Operad Group Seminar, Prague, Czech Republic Jul 23
10. Univerisy of Cologne, Algebra Group Seminar, Cologne, Germany Jul 23
11. Notre Dame, Colloquium, South Bend, IN Mar 23
12. Rutgers Newark, Colloquium, Newark, NJ Feb 23
13. Temple University, Colloquium, Philadelphia, PA Feb 23
14. Penn State, Colloquium, State College, PA Dec 22
15. MPIM Bonn, Seminar on Algebra, Geometry and Physics (remote) Oct 22
16. MPIM Bonn, Oberseminar, Bonn, Germany Jul 22
17. TU Dresden, Geometric methods in Mathematics Jun 22
18. Higher Homotopical Structures Seminar, University of Barcelona, Spain May 22
19. Humboldt University, KMPB seminar, Berlin, Germany May 22
20. Global Noncommutative Geometry Seminar, remote Feb 22
21. University of Western Ontario, Geometry and Topology Seminar (remote) Apr 21
22. University of Waterloo, Algebraic and Enumerative Combinatorics Seminar, (remote) Mar 21
23. Mathematical Physics and Harmonic Analysis Seminar, Texas A&M (remote) Jan 21
24. LAGOON Seminar, Leicester, UK (remote) Dec 20
25. Mathematical Physics Seminar, Humboldt University, Berlin, Germany (remote) Jun 20
26. Physics Colloquium, Purdue University Oct 19
27. Max–Planck–Institut Bonn, Oberseminar, Bonn, Germany Jul 19
28. Czech Academy of Sciences, Mathematics Seminar, Prague, Czech Republic May 19
29. Notre Dame, Topology Seminar, Notre Dame, IN Apr 19
30. UPUC, Mathematics Seminar, Lima, Peru Oct 18
31. IHES, Séminaire de Mathématique, Bures-sur-Yvette, France July 18
32. Université Paris 7, Mini-Course, Paris, France July 18
33. Université Paris 7, Topology Seminar, Paris, France May 18
34. IBS Center for Geometry and Physics (2 talks), Pohang, Korea, Seminar Apr 18
35. Einstein Chair Seminar, CUNY, New York Mar 18
36. Max–Planck–Institut Bonn, Seminar on Algebra, Geometry and Physics, Bonn, Germany Feb 18
37. Vanderbilt University, Subfactor Seminar, Nashville, TN Sep 17
38. Humboldt Universität Berlin,Mathematical Physics seminar, Berlin, Germany Jun 17
39. Universität Göttingen, Colloquium, Göttingen Germany May 17

40. University of Minnesota, Colloquium, Minneapolis, MN Oct 16
41. Max–Planck–Institut Bonn, Oberseminar, Germany Jul 16
42. TU/Humboldt University Berlin, Outer space and QFT, Berlin, Germany Jul 16
43. Indiana University, Topology Seminar, Bloomington, IN Nov 15
44. UPenn, Deformation theory seminar, Philadelphia, PA Oct 15
45. Humboldt University, SFB seminar, Berlin, Germany June 15
46. Humboldt University, Mathematical Physics seminar, Berlin, Germany June 15
47. Penn State University, Colloquium, State College, PA Apr 15
48. IUPUI, Joint IU/IUPUI/PU Topology Seminar, Indianapolis, IN Oct 14
49. Humboldt University, Mathematical Physics seminar, Berlin, Germany May 14
50. University of Luxembourg, Differential and Homotopical Geometry seminar, Luxembourg Apr 14
51. Max–Planck–Institut, Seminar on Algebra, Geometry and Physics, Bonn, Germany Feb 14
52. IAS and Princeton, Symplectic Geometry Seminar, Princeton NJ Dec 13
53. Princeton University, Algebraic Topology Seminar, Princeton NJ, Nov 13
54. UPenn, Algebraic Topology Seminar, Philadelphia PA Nov 13
55. Rutgers, Algebra Seminar, Piscateway NJ Oct 13
56. University of Maryland, Algebra Seminar Oct 13
57. CUNY, Einstein Chair Seminar, New York NY Sep 13
58. Max–Planck–Institute, Seminar on Geometry, Algebra and Physics, Bonn Aug 13
59. Humboldt University Berlin, Mathematical Physics Seminar, Berlin, Germany Jun 13
60. University of Hannover, Colloquium, Hannover Germany Jun 13
61. Grothendieck–Teichmueller and Operads seminar, Newton Institute, Cambridge, UK Mar 13
62. University of Sheffield, Topology Seminar, Sheffield, UK Mar 13
63. Indiana University, Topology Seminar, Bloomington IN, Oct 12
64. Jussieu Université Paris VI, Séminaire d'Analyse Algèbrique, Paris,France Jun 12
65. Université Sophia Antipolis, Séminaire algèbre, topologie et géométrie, Nice, France May 12
66. Quantum Topology/Hopf Algebra Seminar, UIC, Chicago, IL Apr 12
67. Vanderbilt University, Subfactor Seminar, Nashville, TN Feb 12
68. Princeton University, Algebraic Topology Seminar, Princeton NJ Oct 11
69. Rutgers University, Seminar on Geometry, Symmetry, and Physics, Piscateway, NJ Oct 11
70. Max–Planck–Institut, Seminar on Algebra, Geometry and Physics, Bonn, Germany Jul 11
71. Universität Göttingen, Colloquium, Germany Jul 11
72. University of Aarhus, QGM Seminar, Aarhus, Denmark. May 11
73. University of Illinois Urbana Champaign, Topology Seminar, Urbana, IL Mar 11
74. Purdue University,Topology Seminar, West Lafayette, IN Feb 10
75. University of Pennsylvania, Deformation Theory Seminar, Philadelphia, PA Dec 10
76. Rutgers University, Algebra Seminar, Piscataway NJ Dec 10
77. Princeton University, Symplectic Geometry Seminar, Princeton, NJ Dec 10
78. CUNY, Einstein Chair Seminar, New York, NY Nov 10
79. Princeton University, Algebraic Topolgoy Seminar, Princeton, NJ Oct 10
80. Institute for Advanced Study, Symplectic Geometry Seminar, Princeton, NJ Oct 10
81. University of Hamburg, Colloquium, Germany May 10
82. Purdue University,Topology Seminar, West Lafayette, IN Feb 10
83. University of Southern California, Colloquium, Los Angeles, CA Nov 09
84. University of Pennsylvania, Joint Physics–Math Seminar, Philadelphia, PA Sep 09
85. Purdue University, Topology Seminar, West Lafayette, IN Sep 09
86. University of Copenhagen, Topology Seminar, Copenhagen, Denmark Jul 09
87. Aarhus University/CTQM, Topology Seminar, Aarhus, Denmark Jun 09

88. University of Freiburg, Germany, Seminar, Freiburg, Germany Jun 09
89. Purdue, Topology Seminar, West Lafayette, IN Apr 09
90. Northwestern University, Geometry/Physics Seminar, Evanston, IL Feb 09
91. University of Chicago, Topology Seminar, Chicago, IL Oct 08
92. Purdue, Topology Seminar, West Lafayette, IN Sep 08
93. Notre Dame, Seminar, South Bend, IN Apr 08
94. Purdue University, Algebraic Geometry Seminar,West Lafayette, IN Mar 08
95. Universität Freiburg, Seminar, Freiburg, Germany Feb 08
96. University of Michigan, Topology Seminar, Ann Arbor, MI Nov 07
97. University of Minnesota, Topology Seminar, Minneapolis, MN Oct 07
98. Max–Planck–Institut, Seminar on Algebra, Geometry and Physics, Bonn, Germany Jul 07
99. Universität Göttingen, Colloquium, Göttingen, Germany Jul 07
100. Universität Heidelberg, Colloquium, Heidelberg, Germany Jun 07
101. Institut Mittag-Leffler, Seminar, Djursholm, Sweden Jun 07
102. University of Illinois, Topology Seminar, Chicago, IL Mai 07
103. Purdue, Colloquium, West Lafayette, IN Jan 07
104. University of Illinois, Colloquium, Chicago, IL Dec 06
105. Institut Mittag-Leffler, Seminar, Djursholm, Sweden Nov 06
106. Brandeis University, Everytopic Seminar, Waltham, MA Oct 06
107. University of Erlangen-Nürnberg, Colloquium, Erlangen, Germany Jul 06
108. MSRI, Strings and Topology seminar, Berkeley, CA May 06
109. UC Berkeley, Math/Physics seminar, Berkeley, CA May 06
110. Wesleyan University, Geometry Seminar, Middeltown, CT Mar 06
111. Boston University, Geometry Seminar, Boston, MA Feb 06
112. University of Southern California, Colloquium, Los Angeles, CA Jan 06
113. University of Southern California, Algebra Seminar, Los Angeles, CA Feb 04
114. Purdue, Colloquium, West Lafayette, IN Nov 05
115. Max-Planck-Institute, Seminar on Algebra, Geometry and Physics, Bonn, Germany Aug 05
116. Unversity of Paderborn, Paderborn, Germany Jul 05
117. Humboldt University, Algebraic Geometry Seminar, Berlin, Germany Jul 05
118. University of Stockholm, Seminar on Algebra and Geometry, Stockholm, Sweden May 05
119. University of Connecticut, Geometry Seminar, Storrs, CT Apr 05
120. UIUC, Topology Seminar, Urbana-Champaign, Il Mar 05
121. MIT, Topology Seminar, Boston, MA Feb 05
122. University of Hamburg, Colloquium, Hamburg, Germany Jan 05
123. University of Bayreuth, Colloquium, Bayreuth, Germany Jan 05
124. University of Minnesota, Colloquium, Minneapolis, MN Dec 04
125. University of Massachusetts, Valley Geometry Seminar, Amherst, MA Nov 04
126. Purdue University, Topology Seminar, West Lafayette, IN Nov 04
127. Max-Planck-Institute for Mathematics, Oberseminar Topologie, Bonn, Germany Aug 04
128. Universität Bonn, Habilitationskolloquium, Bonn, Germany Jun 04
129. University of Connecticut, Colloquium, Storrs, CT Mar 04
130. University of Southern California, Colloquium, Los Angeles, CA Feb 04
131. Stanford University, Symplectic Geometry/Topology Seminar, Stanford, CA Nov 03
132. Oklahoma State University, Colloquium, Stillwater, OK Oct 03
133. Max–Planck–Institute, Seminar on Algebra, Geometry, and Physics, Bonn, Germany Jul 03
134. Max–Planck–Institute for Mathematics, Oberseminar, Bonn, Germany Jun 03
135. University of Southern California, Algebra Seminar, Los Angeles, CA May 03

136. University of Bayreuth, Colloquium, Bayreuth, Germany Apr 03
137. Hong Kong University of Science and Technology, Colloquium, Hong Kong Feb 03
138. UCSD, Colloquium, San Diego, CA Feb 03
139. UCSD, Geometry and Topology Seminar, San Diego, CA Feb 03
140. University of Bonn, Colloquium, Bonn, Germany Jan 03
141. University of Münster, Seminar Graduiertenkolleg, Münster, Germany Jan 03
142. Humboldt University, Algebraic Geometry Seminar, Berlin, Germany Dec 02
143. University of Mainz, Geometry and Topology Seminar, Mainz, Germany Dec 02
144. University of Utrecht, Geometry Seminar, Utrecht, Netherlands Oct 02
145. University of Pennsylvania, Deformation Theory Seminar, Philadelphia, PA Oct 02
146. Yale University, Seminar on Geometry, Symmetry and Physics, New Haven, CT Oct 02
147. Université Paris 13, Paris, Séminaire de Topologie Algébrique, Paris, France Jun 02
148. UCLA, Geometry Seminar, Los Angeles, CA May 02
149. University of Massachusetts, Mathematics Colloquium, Amherst, MA Mar 02
150. University of Texas A&M, Mathematics Colloquium, College Station, TX Feb 02
151. Oklahoma State University, Mathematics Colloquium, Stillwater, OK Feb 02
152. University of Oregon, Mathematics Colloquium, Eugene, OR Jan 02
153. University of California at Irvine, Mathematics Colloquium, Irvine, CA Jan 02
154. University of Kentucky, Mathematics Colloquium, Lexington, KY Dec 01
155. Boston University, Geometry Seminar, Boston, MA Dec 01
156. CUNY, Topology seminar, New York, NY Dec 01
157. Caltech/USC Geometry and Topology Seminar, Los Angeles, CA Oct 01
158. UCLA, Mathematics Colloquium, Los Angeles, CA May 01
159. Brigham Young University, Mathematics Colloquium, Provo, UT May 01
160. Columbia University, Algebraic Geometry Seminar, New York, NY Apr 01
161. University of Southern California, Topology Seminar, Los Angeles, CA Nov 00
162. Université Joseph Fourier, Mathematics Colloquium, Grenoble, France May 99
163. University of Salamanca, Mathematics Colloquium, Salamanca, Spain Apr 99

General Math Student Audience Lectures

1. Talk in West Lafayette HS Math Club Apr 25
2. Graduate Student recruiting talk, Purdue University Mar 24
3. Bridge to research seminar, Purdue University Nov 22
4. Bridge to research seminar, Purdue University Mar 20
5. Graduate Lecture, CUNY, New York Mar 18
6. Lecture for the University of Purdue Math Club Feb 11
7. Bridge to research seminar, Purdue University Nov 10
8. Grad student pre-seminar, Northwestern Feb 09
9. Grad student pre-seminar, Univ. of Chicago Oct 08
10. Grad student pre-seminar, Notre Dame Apr 08
11. Bridge to research seminar, Purdue University Oct 08
12. Bridge to research seminar, Purdue University Apr 08
13. Student lecture at the Universität Göttingen Jul 07
14. Lecture for the University of Connecticut Math Club Mar 04

Interdisciplinary Lectures and Organization

1. Panel Speaker at the International Conference on Romanticism, Colorado Springs, CO — Oct 25
   From Theory to Practice: A Transformative Reading of Eichendorff's "Marmorbild"
2. Panel Speaker at the International Conference on Romanticism, Detroit, MI — Oct 23
   Alexander von Humboldt on what he calls "Naturgemälde" in Kosmos
   Talk "Humboldt and Romantic 'Characteristics' of Science"
3. Guest lecture in graduate seminar CMPL "Cosmos: Postcolonial Environmentalism" — Aug 23
4. *Romantic science in Humboldt's Cosmos*
5. Organization of panel "Reading colors" at SLSA conference in Purdue — Oct 22
   Talk *Color as a Paradigm*
6. Hosting the talk "Topology — Art — Poetry" by Oswald Egger at Purdue — Oct 22
7. Speaker at an interdisciplinary conference in Mathematics in Lima, Peru (remote) — Mar 21
   From flow-charts and combinatorics to algebra and geometry.
8. Speaker at the 4th Padua-Bochum DAAD Workshop in Padova, Italy — Jul 19
   "Classical German Philosophy Forms of Nature in Classical German Philosophy"
   Hegel's Theory of Space in the Philosophy of Nature joint with Chris Yeomans
9. Speaker at the Conference on "Logic, Mathematics and Philosophy" in Purdue — Sep 14
   Mathematical Language as a Paradigm
10. Speaker at the Institute for Advanced Studies After Hours Conversation — Nov 13
    Truth or Beauty: what can mathematical language do for you?
11. Speaker at an evening on Mathematics and Poetry with Oswald Egger — Jul 11
    at the Max–Planck–Insitute for Mathematics in Bonn
    Text Reflektion Mathematik und Poesie

Ralph Martin Kaufmann

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Teaching Experience

At Purdue University:

Graduate Courses:
Introduction in Algebraic Topology
Algebraic Topology II
Topological Data Analysis
Homological Algebra: Derived Categories
Moduli Spaces and Stacks
Cobordisms, Genera, Characteristic Classes and Topological K-Theory
Differential Topology
Hopf Algebras
Applied Topology/Topological Data Analysis
Quantum Computing (Fall 25)
Abstract Algebra
Linear Algebra with Applications
(Traditional and distance for Engineering Professional Education)
Advanced Mathematics For Engineers And Physicists I
(Traditional and distance for Engineering Professional Education)
Quantum Computing

Undergraduate Courses:
Calculus I (IMPACT/inverted classroom) (2x120)
Calculus II (ca. 360)
Calculus III (multivariate)
(small (ca. 35) and large (ca 400-700) sections, course coordinator for 1800+ Students)
Topics in Multivariable Calculus
Ordinary Differential Equations
Linear Algebra
Elementary Differential Geometry
Quantum Computing (Honors College)

At the University of Connecticut (2004–2007):

Graduate Courses:
Commutative Algebra
Algebraic Geometry I
Algebraic Geometry II
Topics in Geometry and Topology:
Elliptic genera, Hopf algebras and operads

Undergraduate Courses:
Differential Geometry
History of Mathematics
Multivariable Calculus

At Oklahoma State University (2003–2004):

Undergraduate courses
History of Mathematics
Multivariable Calculus

At the Universität Bonn for the "Bonn International Graduate School" (BIGS) and the "International Max-Planck Research School" (IMPRS) (2002–2003):

Introduction to Moduli Spaces of Curves

At the University of Southern California (USC) (1999–2002):

Graduate Course:	Undergraduate Courses:
At CaltechUSC Center for Theoretical Physics:	*Multivariable Calculus* (5 courses)
Vector Bundles, Characteristic Classes,	*Topology*
K-theory, Cobordisms, Genera and	*Geometry and Transformation Groups*
Index Theorems	*Differential Geometry*

As a post-doc at the Max–Planck–Institut für Mathematik in Bonn (1997–1998):
Organizer of the "Diplomanden/Doktoranden Seminar" on Knot-theory

As teaching assistant at the Universität Bonn (1990–1994):
Linear Algebra I, Linear Algebra II, Algebra, and Theoretical Electrodynamics

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Publications

Publications in Mathematics and Science

1. Mohamad Mousa, Birgit Wehefritz-Kaufmann, Sabre Kais, Shawn Cui, Ralph Kaufmann. "Refined Phase Diagram for a Spin-1 System Exhibiting a Haldane Phase". Phys. Rev. B 111, 085303

2. Kaufmann, Ralph M. and Zúñiga, J. Javier. "A combinatorial model for the moduli of bordered Riemann surfaces and a compactification" Contemp. Math., 802. American Mathematical Society, [Providence], RI, 2024, 117–137.

3. Nguyen, Nghi; Hou, Tao; Amico, Enrico; Zheng, Jingyi; Huang, Huajun; Kaplan, Alan D.; Petri, Giovanni; Goñi, Joaquín; Kaufmann, Ralph; Zhao, Yize; Duong-Tran, Duy; and Shen,Li . "Volume-Optimal Persistence Homological Scaffolds of Hemodynamic Networks Covary with MEG Theta-Alpha Aperiodic Dynamics". Medical Image Computing and Computer Assisted Intervention – MICCAI 2024 27th International Conference, Marrakesh, Morocco, October 6–10, 2024, Proceedings, Part III Lecture Notes in Computer Science, vol 15003. Springer, Cham. 2024.

4. Kaufmann, Ralph M. and Monaco, Michael. "Plethysm Products, Element and Plus Constructions" C. R. Math. Acad. Sci. Paris 362 (2024), 357-411.

5. Kaufmann, Ralph M., Li, Dan, and Wehefritz-Kaufmann, Birgit. "Topological insulators and K-theory". J. Math. Phys. 65, 043502 (2024).

6. Duong-Tran, Duy; Kaufmann Ralph; et al. "Homological Landscape of Human Brain Functional Sub-Circuits", Mathematics, 12 (3) 455 (2024).

7. Kaufmann, Ralph M. and Benjamin C. Ward. "Koszul Feynman Categories", Proc. Amer. Math. Soc. 151 (2023), 3253-3267

8. Kaufmann, Ralph M. and Medina-Mardones, Anibal M. "A combinatorial E_∞ algebra structure on cubical cochains" Cahiers de topologie et géométrie différentielle catégoriques 63,4 (2022) 387-424

9. Kaufmann, Ralph M. "A detailed look on actions on Hochschild complexes especially the degree 1 co-product and actions on loop spaces" . Journal of Noncommutative Geometry 16 (2022), no. 2, 677–716.

10. Kaufmann, Ralph M. and Mo, Yang. "Pathlike Co/bialgebras and their antipodes with applications to bi- and Hopf algebras appearing in topology, number theory and physics". SIGMA 18 (2022), 053.

11. Kaufmann, Ralph M. and Medina-Mardones, Anibal M. "Cochain level May-Steenrod operations". Forum Math. 33 (2021), no. 6, 1507-1526

12. Kaufmann, Ralph M. "Feynman categories and Representation Theory". In: "Representations of Algebras, Geometry and Physics" 11–84, Contemp. Math., 769 (2021)

13. Kaufmann, Ralph M., Khlebnikov, Sergei, and Wehefritz-Kaufmann, Birgit "Local models and global constraints for degeneracies and band crossings" J. of Geometry and Physics 158 (2020) 103892.

14. Galvez-Carillo, Imma, Kaufmann, Ralph M., and Tonks, Andrew. "Three Hopf algebras from number theory, physics & topology, and their common background I: operadic & simplicial aspects" Comm. in Numb. Th. and Physics (CNTP), vol 14,1 (2020), 1-90.

15. Galvez-Carillo, Imma, Kaufmann, Ralph M., and Tonks, Andrew. "Three Hopf algebras from number theory, physics & topology, and their common background II: general categorical formulation" Comm. in Numb. Th. and Physics (CNTP), vol 14,1 (2020), 91-169.

16. Kaufmann, Ralph M. "Lectures on Feynman categories", 2016 MATRIX annals, 375–438, MATRIX Book Ser., 1, Springer, Cham, 2018.

17. Kaufmann, Ralph M. and Kaufmann-Wehfritz, B. *Theoretical Properties of Materials Formed as Wire Network Graphs from Triply Periodic CMC Surfaces, Especially the Gyroid* in: "The Role of Topology in Materials", Eds: Gupta, S. and Saxena, A., Springer series in Solid State Sciences. Springer, 2018

18. Kaufmann, Ralph and Lucas, Jason. "Decorated Feynman categories". J. of Noncommutative Geometry, 1 (2017), no 4 1437-1464

19. Berger, C. and Kaufmann R. M. "Comprehensive Factorization Systems". Special Issue in honor of Professors Peter J. Freyd and F.William Lawvere on the occasion of their 80th birthdays, Tbilisi Mathematical Journal 10 (2017), no. 3, 255-277

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