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Name:	Stefan Friedl
Citizenship:	German
Date of Birth:	March 23rd 1973
Research Interests:	Knot theory, low–dimensional topology, symplectic 4–manifolds and related algebra

Current Position

- W2 Professor (since October 2013)
  Fakultät für Mathematik, Universität Regensburg, Regensburg, Germany

Previous Positions

- W2 Professor (October 2010 – September 2013)
  Mathematisches Institut, Universität zu Köln, Köln, Germany
- Assistant Professor (August 2008 – September 2010)
  Department of Mathematics, University of Warwick, Coventry, United Kingdom
- CRM-ISM Postdoctoral Fellow (October 2006 - July 2008)
  Département de Mathématiques, Université du Québec à Montréal, Montréal, Canada
- G. C. Evans Instructor (July 2004 – June 2006)
  Department of Mathematics, Rice University, Houston, USA
- Postdoctoral Fellow (October 2003 – March 2004)
  Department of Mathematics, Ludwig–Maximilian University, Munich, Germany

Education

- Ph.D., Mathematics, Brandeis University, May 2003.
- M.A., Mathematics, Brandeis University, May 2000.
- Staatsexamen für Lehramt am Gymnasium in Mathematik und Physik, Regensburg University, Germany, December 1998.
- Abitur, Benedikt-Stattler Gymnasium, Bad Kötzting, Juli 1992.

Alternative civilian service

- St. Josef Hospital, Bad Kötzting (July 1992 – September 1993).

Publications and Preprints of Stefan Friedl

1. *Eta invariants as sliceness obstructions and their relation to Casson-Gordon invariants*, Algebraic and Geometric Topology, Vol. 4: 893-934 (2004).
2. *New topologically slice knots* (with Peter Teichner), Geometry and Topology, Volume 9, Paper no. 48: 2129–2158 (2005)

3. *Full signature invariants for $L_0(F(t))$*, Proceedings of the American Mathematical Society 133: 647-653 (2005).

4. *L^2-eta-invariants and their approximation by unitary eta-invariants*, Mathematical Proceedings of the Cambridge Philosophical Society 138: 327-338 (2005).

5. *Link concordance, boundary link concordance and eta invariants*, Mathematical Proceedings of the Cambridge Philosophical Society 138: 437-460 (2005).

6. *Algorithm for finding boundary link Seifert matrices*, Journal of Knot Theory and Its Ramifications, Vol. 15, No. 5, 601–612 (2006).

7. *Thurston norm, fibered manifolds and twisted Alexander polynomials* (with Taehee Kim), Topology 45: 929-953 (2006)

8. *Reidemeister torsion, the Thurston norm and Harvey's invariants*, Pacific Journal of Mathematics 230: 271-296 (2007)

9. *Non–commutative multivariable Reidemeister torsion and the Thurston norm* (with Shelly Harvey), Algebraic and Geometric Topology 7: 755-777 (2007)

10. *Non-smoothable four-manifolds with cyclic fundamental group* (with Ian Hambleton, Paul Melvin and Peter Teichner), International Mathematics Research Notices 2007, Article ID rnm031, 20 pages

11. *Nontrivial Alexander polynomials of knots and links* (with Stefano Vidussi), Bulletin of the London Mathematical Society 39: 614–622 (2007)

12. *The parity of the Cochran-Harvey invariants of 3-manifolds* (with Taehee Kim), Transactions of the American Mathematical Society 360 (2008), 2909-2922.

13. *Symplectic $\mathbf{S}^1 \times \mathbf{N}^3$, surface subgroup separability, and vanishing Thurston norm* (with Stefano Vidussi), Journal of the American Mathematical Society 21 (2008), 597-610.

14. *Twisted Alexander polynomials and symplectic structures* (with Stefano Vidussi), American Journal of Mathematics 130 (2), 455–484 (2008)

15. *Twisted Alexander norms give lower bounds on the Thurston norm* (with Taehee Kim), Transactions of the American Mathematical Society 360 (2008), 4597-4618.

16. *Metabelian $SL(n, \mathbb{C})$ representations of knot groups* (with Hans Boden), Pacific Journal of Mathematics 238, 7–25 (2008)

17. *Twisted Alexander polynomials, symplectic 4–manifolds and surfaces of minimal complexity* (with Stefano Vidussi), Banach Center Publ. 85 (2009), 43-57

18. *New constructions of slice links* (with Tim Cochran and Peter Teichner), Commentarii Mathematici Helvitici 84, Issue 3 (2009), 617-638.

19. *L^2–Betti numbers of plane algebraic curves* (with Constance Leidy and Laurentiu Maxim), Michigan Mathematical Journal, 58 (2009), no. 2, 291-301.

20. *Realizations of Seifert matrices by hyperbolic knots*, Journal of Knot Theory and Its Ramifications, Vol. 18, No. 11, 1471–1474 (2009)

21. *A survey of twisted Alexander polynomials* (with Stefano Vidussi), in: The Mathematics of Knots: Theory and Application (Contributions in Mathematical and Computational Sciences), editors: Markus Banagl and Denis Vogel (2010), p. 45-94.

22. *Metabelian $SL(n, \mathbb{C})$ representations of knot groups II: fixed points* (with Hans Boden), Pacific Journal of Mathematics, 249-1 (2011), 1–10.

23. *A Criterion for HNN Extensions of Finite p-Groups to be Residually p* (with Matthias Aschenbrenner), Journal of Pure and Applied Algebra 215 (2011) 2280–2289.

24. *Twisted Alexander polynomials detect fibered 3–manifolds* (with Stefano Vidussi), Annals of Mathematics, Volume 173 (2011), 1587–1643.

25. *Residual properties of graph manifold groups* (with Matthias Aschenbrenner), Topology and its Applications 158 (2011), 1179–1191.

26. *Symplectic* **4**–*manifolds with* $K = 0$ *and the Lubotzky alternative* (with Stefano Vidussi), Mathematics Research Letters 18 (2011) 513-519.

27. *The cobordism group of homology cylinders* (with Jae Choon Cha and Taehee Kim), Compositio Mathematica 147 (2011), 914-942.

28. *The decategorification of sutured Floer homology* (with András Juhász and Jacob Rasmussen), Journal of Topology (2011) 4(2): 431-478.

29. *Twisted Alexander polynomials and fibered 3-manifolds* (with Stefano Vidussi), Low-Dimensional and Symplectic Topology, Proceedings of Symposia in Pure Mathematics Volume 82 (2011), 111-130.

30. *An Injectivity Theorem for Casson-Gordon Type Representations relating to the Concordance of Knots and Links* (with Mark Powell), Bulletin of the Korean Mathematical Society 49 (2012), 395–409.

31. *Construction of symplectic structures on* 4–*manifolds with a free circle action* (with Stefano Vidussi), Proceedings of the Royal Society of Edinburgh 142 (2012), 359–370.

32. *Twisted Alexander polynomials of hyperbolic knots* (with Nathan Dunfield and Nicholas Jackson), Experimental Mathematics 21 (2012), 329–352.

33. *Cosmetic crossings and Seifert matrices* (with Cheryl Balm, Efstratia Kalfagianni and Mark Powell), Communications in Analysis and Geometry 20 (2012), 235–253.

34. *Poincaré duality and degrees of twisted Alexander polynomials* (with Taehee Kim and Takahiro Kitayama), Indiana University Mathematics Journal. 61 (2012), 147–192.

35. *Twisted torsion invariants and link concordance* (with Jae Choon Cha), Forum Mathematicum 25 (2013), 471–504.

36. *3-manifold groups are virtually residually p* (with Matthias Aschenbrenner), Memoirs of the Amer. Math. Soc. 225, Number 1058 (2013)

37. *Commensurability of knots and* L^2–*invariants*, 16 pages, to be published by Geometry & Topology Down Under: Proceedings of the Rubinstein conference. Contemporary Mathematics 597 (2013), 263-279.

38. *Taut sutured manifolds and twisted homology* (with Taehee Kim), Mathematical Research Letter 20 (2013), 289–303.

39. *Minimal Genus on 4-manifolds with a Free Circle Action* (with Stefano Vidussi), Advances in Mathematics 250 (2014), 570–587.

40. *Cobordisms to weakly splittable links* (with Mark Powell), Proceedings of the American Mathematical Society 142 (2014), 703–712.

41. *A vanishing theorem for twisted Alexander polynomials with applications to symplectic 4-manifolds*, (with Stefano Vidussi), Journal of the European Mathematical Society 15 (2013), no. 6, 2127–2041.

42. *Kähler groups, quasi-projective groups, and* 3-*manifold groups* (with Alex Suciu),

Journal of the London Mathematical Sociecty 89 (2014), 151–168.

43. *Links not concordant to the Hopf link* (with Mark Powell), Mathematical Proceedings of the Cambridge Philosophical Society 156 (2014), 425–459.

44. *On the topology of Symplectic Calabi-Yau 4-manifolds* (with Stefano Vidussi), 12 pages, Journal of Topology (2013) 6 (4): 945–954.

45. *Metabelian $SL(n, \mathbb{C})$ representations of knot groups IV: Twisted Alexander polynomials* (with Hans Boden), Mathematical Proceedings of the Cambridge Philosophical Society 156 (2014), 81–97.

46. *A note on a topological approach to the µ-constant problem in dimension 2* (with Maciej Borodzik), Revista Matemática Complutense 27 (2014), 345–350.

47. *A note on the growth of Betti numbers and ranks of 3-manifold groups*, Bulletin des Sciences Mathématiques 138 (2014), 63–70.

48. *Rank gradients of infinite cyclic covers of 3-manifolds* (with Jason DeBlois and Stefano Vidussi), Michigan Journal of Mathematics 63 (2014), 65–81.

49. *Concordance of links with identical Alexander invariants* (with Jae Choon Cha and Mark Powell), Bulletin of the London Mathematical Society 46, No. 3 (2014), 629–642.

50. *Twisted Reidemeister torsion, the Thurston norm and fibered manifolds*, Geometriae Dedicata 172, (2014), 135–145.

51. *The unknotting number and classical invariants II* (with Maciej Borodzik), Glasgow Mathematical Journal 56 (2014), 657–680.

52. *The virtual fibering theorem for 3-manifolds* (with Takahiro Kitayama), L'Enseignement Mathématique 60 (2014), no. 1, 79–107.

53. *A specious unlinking strategy* (with Matthias Nagel and Mark Powell), Periodica Mathematica Hungarica 69 (2014), 207–210.

54. *Metabelian $SL(n, \mathbb{C})$ representations of knot groups, III: deformations* (with Hans Boden), Quarterly Journal of Mathematics 65 (2014), 817–840.

55. *Thurston's vision and the virtual fibering theorem for 3-manifolds*, Jahresber. Dtsch. Math.-Ver. 116 (2014), 223–241.

56. *On the algebraic unknotting number* (with Maciej Borodzik), Transactions of the London Mathematical Society 1 (2014), 57–84.

57. *The unknotting number and classical invariants I* (with Maciej Borodzik), Algebraic & Geometric Topology 15 (2015), 85–135.

58. *The L^2-Alexander torsions of 3-manifolds* (with Jérôme Dubois and Wolfgang Lück), Comptes Rendus Mathématique 353 (2015), 69–73.

59. *Three flavors of twisted invariants of knots* (with Jérôme Dubois and Wolfgang Lück), Introduction to Modern Mathematics, Advanced Lectures in Mathematics 33 (2015), 143–170.

60. *Thompson's group F is not SCY*, Groups, Geometry and Dynamics 9 (2015), 325–329.

61. *Splittings of knot groups* (with Daniel Silver and Susan Williams), Mathematische Annalen 362, (2015), 401–424.

62. *Virtually symplectic fibered 4-manifolds* (with İnanç Baykur), Indiana Univ. Math. J. 64 No. 4 (2015), 983–999.

63. *3-manifold groups* (with Matthias Aschenbrenner and Henry Wilton), 230 pages, EMS Series of Lectures in Mathematics (2015)

64. *The Thurston norm and twisted Alexander polynomials* (with Stefano Vidussi), Journal für die reine und angewandte Mathematik 707 (2015), 87–102.

65. *The L^2-Alexander torsion is symmetric* (with Jérôme Dubois and Wolfgang Lück), Algebraic & Geometric Topology 15-6 (2015), 3599–3612.

66. *3-manifolds that can be made acyclic* (with Matthias Nagel), International Mathematics Research Notices 2015, no. 24, 13360–13378.

67. *Decision problems for 3-manifolds and their fundamental groups* (with Matthias Aschenbrenner and Henry Wilton), Baykur, R. Inanc (ed.) et al., Interactions between low dimensional topology and mapping class groups. Geometry and Topology Monographs 19 (2015), 201–236.

68. *Sutured Floer homology, fibrations, and taut depth one foliations* (with András Juhász and Irida Altman), Trans. Am. Math. Soc. 368, No. 9 (2016), 6363–6389.

69. *Blanchfield forms and Gordian distance* (with Maciej Borodzik and Mark Powell), Journal of the Mathematical Society of Japan 68 (2016), no. 3, 1047–1080.

70. *Twist spinning of knots and metabolizers of Blanchfield pairings* (with Patrick Orson), 12 pages, Annales de la Faculté des Sciences de Toulouse (2015), no. 5, 1203–1218.

71. *The membership problem for 3-manifold groups* (with Henry Wilton), Algebraic and Geometric Topology 16 (2016), 1827–1850.

72. *The Turaev and Thurston norms* (with Dan Silver and Susan Williams), Pacific Journal of Mathematics 284 (2016), 365–382.

73. *Twisted Reidemeister torsion and the Thurston norm: graph manifolds and finite representations* (with Matthias Nagel), Illinois Journal of Mathematics 59 (2015), 691-705.

74. *The L^2–Alexander torsion of 3-manifolds* (with Jérôme Dubois and Wolfgang Lück), Journal of Topology 9, No. 3 (2016), 889–926.

75. *Rank gradients of infinite cyclic covers of Kähler manifolds* (with Stefano Vidussi), Journal of Group Theory 19 (2016), 941-957.

76. *Novikov homology and noncommutative Alexander polynomials*, Journal of Knot Theory and its Ramifications 26, 1740013 (30 pages) (2017)

77. *The Grothendieck group of polytopes and norms* (with Jae Choon Cha and Florian Funke), Münster Journal of Mathematics 10 (2017), 75-81.

78. *A calculation of Blanchfield pairings of 3-manifolds and knots* (with Mark Powell), Moscow Mathematical Journal 17 (2017), 59–77.

79. *A note on the existence of essential tribranched surfaces* (with Takahiro Kitayama and Matthias Nagel), Topology and its Applications 225 (2017) 75–82.

80. *Twisted Alexander invariants detect trivial links* (with Stefano Vidussi), Canadian Mathematical Bulletin 60 (2017), 283–299.

81. *Twisted Novikov homology of complex hypersurface complements* (with Laurentiu Maxim), Mathematische Nachrichten 290 (2017), 604–612.

82. *Knot concordances and alternating knots* (with Chuck Livingston and Raphael Zent-

ner), Michigan Mathematical Journal 66 (2017), 421–432.

83. *Splitting numbers of links* (with Jae Choon Cha and Mark Powell), Proceedings of the Edinburgh Mathematical Society 60 (2017), 587–614

84. *Thurston norm via Fox calculus* (with Kevin Schreve and Stephan Tillmann), Geometry % Topology 21 (2017), 3759–3784.

85. *Universal L^2-torsion, polytopes and applications to 3-manifolds* (with Wolfgang Lück), Proceedings of the London Mathematical Society 114 (2017), 1114–1151.

86. *The group law on elliptic curves*, Groups, Complexity, Cryptology 9 (2017), no. 2, 117–123.

87. *Twisted Blanchfield pairings and decompositions of 3-manifolds* (with Constance Leidy, Matthias Nagel and Mark Powell), Homology, Homotopy and Applications 19 (2017), 275–287.

88. *On high-dimensional representations of knot groups* (with Michael Heusener), Algebraic & Geometric Topology 18-1 (2018), 313–332.

89. *Linking forms revisited* (with Anthony Conway and Gerrit Herrmann), Pure and Applied Mathematics Quarterly 12 (2016), 493–515.

90. *Representation varieties detect essential surfaces* (with Takahiro Kitayama and Matthias Nagel), Mathematical Research Letters 25 (2018), 803-817.

91. *Epimorphisms of 3-manifold groups* (with Michel Boileau), The Quarterly Journal of Mathematics (2018), 931–942.

92. *Linear representations of 3-manifold groups over rings* (with Montek Gill and Stephan Tillmann), Proceedings of the American Mathematical Society 146 (2018), 4951-4966.

93. *Satellites and concordance of knots in 3–manifolds* (with Matthias Nagel, Patrick Orson and Mark Powell), Transactions of the American Mathematical Society 371, No. 4 (2019), 2279–2306.

94. *The Blanchfield pairing of colored links* (with Anthony Conway and Enrico Toffoli), Indiana University Mathematics Journal 67, No. 6 (2018), 2151-2180.

95. *The L^2-torsion function and the Thurston norm of 3-manifolds* (with Wolfgang Lück), Commentarii Mathematici Helvetici 94 (2019), no. 1, 21–52.

96. *L^2-Euler characteristics and the Thurston norm* (with Wolfgang Lück), Proceedings of the London Mathematical Society 118 (2019), no. 4, 857-900.

97. *The virtual Thurston seminorm of 3-manifolds* (with Michel Boileau), 14 pages, Osaka Journal of Mathematics 56 (2019), no. 1, 51-63.

98. *Integral approximation of simplicial volume of graph manifolds* (with Daniel Fauser and Clara Löh), Bulletin of the London Mathematical Society 51 (2019), no. 4, 715–731.

99. *Groups and polytopes* (with Wolfgang Lück and Stephan Tillmann), Breadth in contemporary topology, 57–77, Proc. Sympos. Pure Math., 102, Amer. Math. Soc., Providence, RI, 2019.

100. *Grothendieck rigidity of 3-manifold groups* (with Michel Boileau), Groups, Geometry & Dynamics 13 (2019), no. 4, 1133–1150.

101. *Two-generator one-relator groups and marked polytopes* (with Stephan Tillmann), Ann. Inst. Fourier Journal Profile 70, No. 2, 831-879 (2020).

102. *The profinite completion of 3-manifold groups, fiberedness and the Thurston norm* (with Michel Boileau), What's next? The mathematical legacy of William P. Thurston. Annals of Mathematics Studies 205, 21–44 (2020).

103. *Homotopy ribbon concordance and Alexander polynomials* (with Mark Powell), Arch. Math. 115, No. 6, 717-725 (2020).

104. *Graphical neighborhoods of spatial graphs* (with Gerrit Herrmann), In Wood D.R., de Gier J., Praeger C.E., Tao T. (eds) 2019-20 MATRIX Annals. MATRIX Book Series 4 (2020), 627-646.

105. *Spatial graphs* (with Gerrit Herrmann), 6 pages, to be published by the Encyclopedia of Knot Theory (2019)

106. *Virtual algebraic fibrations of Kähler groups* (with Stefano Vidussi), 22 pages, to be published by the Nagoya Mathematical Journal.

107. *On distinct finite covers of 3-manifolds* (with JungHwan Park, Bram Petri, Jean Raimbault and Arunima Ray), 26 pages, submitted. To be published by the Indiana University Mathematics Journal.

108. *The leading coefficient of the L^2-Alexander torsion* (with Fathi Ben Aribi and Gerrit Herrmann), 32 pages, to be published by the Annales de l'Institut Fourier.

109. *Epimorphism testing with virtually Abelian targets* (with Clara Löh), 18 pages, to be published by Confluentes Matheamtici.

110. *Torsion in the homology of finite covers of 3-manifolds* (with Gerrit Herrmann), 9 pages, submitted.

111. *Connected sum decompositions of high-dimensional manifolds* (with Imre Bokor, Diarmuid Crowley, Fabian Hebestreit, Daniel Kasprowski, Markus Land and Johnny Nicholson), 23 pages, submitted.

112. *A survey of the foundations of four-manifold theory in the topological category* (with Matthias Nagel, Patrick Orson and Mark Powell), 100 pages.

113. *BNS Invariants and Algebraic Fibrations of Group Extensions* (with Stefan Vidussi), 16 pages.

114. *Homotopy ribbon concordance, Blanchfield pairings, and twisted Alexander polynomials* (with Lukas Lewark, Matthias Nagel, Mark Powell and Takahiro Kitayama), 30 pages. To be published by the Canadian Journal of Mathematics.

Non-refereed Publications and unpublished notes

1. *Symplectic $S^1 \times N^3$ and subgroup separability* (with Stefano Vidussi), Oberwolfach Reports, Volume 3, Issue 3 (2006), 2166–2168

2. *Fundamental groups of 3-manifolds* (with Matthias Aschenbrenner), Oberwolfach Reports, Volume 7, Issue 3 (2010), 2479–2482.

3. *Centralizers in 3-manifold groups*, RIMS Kôkyûroku 1747 (2011), 23–34.

4. *Approximations to the volume of hyperbolic knots* (with Nicholas Jackson), RIMS Kôkyûroku 1747 (2011), 35–46.

5. *Cobordism on homology cylinders and combinatorial torsions* (with Jae Choon Cha and Taehee Kim), RIMS Kôkyûroku 1747 (2011) 17–22.

6. *The Thurston norm via Fox calculus* (with Kevin Schreve and Stephan Tillmann), Oberwolfach reports, Volum 12 (2015), 200–202.

7. *Profinite completions and 3-manifold groups* (with Michel Boileau), RIMS Kôkyûroku (2016)

8. *Determinants of amphichiral knots* (with Allison Miller and Mark Powell), 7 pages.

Editor

1. Characters in low-dimensional topology, Editor with O. Collin, C. Gordon, S. Tillmann and L. Watson, Contemporary Mathematics 597. American Mathematical Society, Providence, RI, 2020

Editorial positions

- Glasgow Journal of Mathematics (2018–)
- Blick in die Wissenschaft (2019–)

Service/akademische Selbstverwaltung

- Studiendekan (October 2019–)
- Alumnibeauftragter (October 2019–)
- Vertreter im Lenkungsausschuss ZSK (May 2017–)

Teaching

- Universität Regensburg

  - Wintersemester 2022-2023: Algebraic Topology I, Knot theory I (2h) - with Filip Misev.
  - Sommersemester 2022: Analysis IV, Topics in topology II (2h).
  - Wintersemester 2021-2022: Analysis III, Topics in topology I (2h).
  - Sommersemester 2021: Analysis II, Topics in topology IV (2h).
  - Wintersemester 2020-2021: Analysis I, Topics in topology III (2h).
  - Sommersemester 2020: Geometrie für Lehramt Gymnasium, Topics in topology II (2h).
  - Wintersemester 2019-2020: Topics in topology I, Elementargeometrie für Lehramt Realschule.
  - Sommersemester 2019: Geometrie für Lehramt Gymnasium, Algebraic Topology IV.5 (2h).
  - Wintersemester 2018 (Freisemester): Algebraic Topology IV (2h), Seminar über Knotentheorie.
  - Sommersemester 2018: Geometrie für Lehramt Gymnasium, Algebraic Topology III.5 (2h), Seminar über Spektralsequenzen.
  - Wintersemester 2017-2018: Algebraic Topology III, Elementargeometrie für Lehramt Realschule, Seminar über Charakteristische Klassen.
  - Sommersemester 2017: Algebraic Topology II, Introduction to Knot Theory II (2h), Seminar über hyperbolische Geometrie.

– Wintersemester 2016-2017: Algebraic Topology I, Introduction to Knot Theory (2h), Seminar über de Rham Kohomologie.
– Sommersemester 2016: Analysis IV, Seminar über Funktionentheorie.
– Wintersemester 2015-2016: Analysis III.
– Sommersemester 2015: Analysis II, Vorlesung über Reidemeistertorsion (mit Uli Bunke), Seminar über stable commutator length.
– Wintersemester 2014-2015: Analysis I, Seminar über L^2-Invarianten.
– Wintersemester 2013-2014: Hyperbolische Geometrie, Seminar on geometric group theory.

- Universität zu Köln

  – Algebraische Topologie, Niedrigdimensionale Topologie, Sommersemester 2013.
  – Topologie, Seminar über euklidische und nichteuklidische Geometrie und Proseminar über Knotentheorie, Sommersemester 2012.
  – Analysis III und Proseminar über Ebene Geometrie, Wintersemester 2011-2012.
  – Analysis II und Proseminar über Knotentheorie, Sommersemester 2011.
  – Analysis I, Wintersemester 2010-2011.

- University of Warwick
  – Manifolds, Spring 2009 and Spring 2010.
  – Introduction to Geometry, Fall 2008 and Fall 2009.

- Université du Québec à Montréal
  – Analyse II, Fall 2007.

- Rice University
  – Linear Algebra, Fall 2004 and Fall 2005.
  – Multivariable Calculus, Spring 2005 and Spring 2006.
  – Geometry, Spring 2005.
  – Algebraic Topology, Spring 2006.

- Brandeis University
  – Differential calculus, Fall 1999.
  – Integral Calculus, Spring 2000 – Spring 2002.

Teaching Awards
- Teaching Award at Brandeis University 2001.
- Lehrpreis der Mathematisch-Naturwissenschaftlichen Fakultät der Universität zu Köln für das Wintersemester 2011/2012.
- 2. Preis für die Vorlesung Analysis II im Sommersemester 2015.
- 2. Preis für die Vorlesung Analysis III im Wintersemester 2015/2016.
- 2. Preis für die Vorlesung Analysis IV im Sommersemester 2016.

- 1. Preis für die Vorlesung Algebraic Topology I im Wintersemester 2016/2017.
- 2. Preis für die Vorlesung Geometrie für Lehramt Gymnasium im Sommersemester 2018.

Doctoral Students
- Irida Altman: On some properties of the sutured Floer polytope (October 2009 - July 2013), jointly supervised with Saul Schleimer and Andras Juhasz.
- Matthias Nagel: Surfaces of minimal complexity in low-dimensional topology (October 2012-September 2015)
- Kenan Ince: The untwisting number of a knot (February 2015-June 2016), jointly supervised with Tim Cochran and Andy Putman.
- Enrico Toffoli: Rho-invariants for manifolds with boundary and low-dimensional topology (January 2015-July 2019)
  Job after PhD: Secondary school teacher in Rome.
- Gerrit Herrmann: Sutured manifolds, L2-Betti numbers and an upper bound on the leading coefficient (November 2015-July 2019)
- Johanna Meumertzheim: Discontinuities of the ρ-invariant and an application to the L^2-ρ-invariant (May 2016-October 2019)
- José Pedro Quintanilha (May 2018-February 2022), jointly supervised with Clara Löh.
- Lars Munser (November 2019-)

Masters Students
- Gerrit Herrmann: L^2-Alexander torsion of Seifert fibered spaces (2015)
- Johanna Meumertzheim: Growth of torsion in the homology of finite coverings of 3-manifolds (2016)
- Bruno Mazorra: Algebraic unknotting number (2019)
- Jakob Schubert: Kohomologie mit verdrehten Koeffizienten (2019)
- Andreas Wicher: Die Cimasoni-Florens-Signatur von Verschlingungen (2020)
- Daniel Grünbaum: Deep Learning of Hyperbolic Knot Invariants (2020)
- Stefan Wolf: Residuelle Endlichkeit von Knotenquandeln (2020)
- Georg Lipp: Konvergenz von getwisteten Alexander-Polynomen (2021)
- Julian Hannes: Pachner's Theorem (2022)
- Jan-Philipp Zwank: Morse inequalities (2022)

Bachelor Students and Zulassungsarbeiten
- Gerrit Herrmann: Eine kombinatorische Beschreibung der Heegaard-Floer-Knoten-Homologie (2013)
- Johanna Meumertzheim: Dehn-Chirurgie und Ordnungsbarkeit (2013)
- Philip Matura: Die Linearität von 3-Mannigfaltigkeitsgruppen (2014)
- Lukas Grässl: Das Wortproblem und Anwendungen auf die Knotentheorie (2017)

- Andreas Wicher: Das Alexanderpolynom von gefaserten Knoten (2017)
- Jakob Schubert: Klassifikation triangulierter kompakter Flächen (2017)
- Georg Lipp: Der Teichmüller-Raum (2017)
- Alexander Neumann: Poincaré-Dualität und der de Rham-Isomorphismus (2017)
- Stefan Wolf: Quandels – eine vollständige Knoteninvariante (2018)
- Julian Hannes: Der Satz von Helly (2018)
- Daniel Grünbaum: Topologische Datenanalyse mithilfe der persistenten Homologie (2018)
- Jan-Philip Zwank: The rendez-vous values of topological spaces (2019)
- Georg Hertle: Differentialgleichungen in Schule, Studium und Praxis (2019)
- Alexander Kindermann: Vergleich der hyperbolischen mit der euklidischen Geometrie (2020)

Meetings and conferences organized

- Co-organizer of the 'Dehn Filling and Cannon-Thurston Days', University of Warwick, May 2009.
- Co-organizer of student meeting, as part of the annual DMV-meeting, September 2011.
- 3-manifolds and Floer theories, University of Regensburg, July 19th-22nd 2016.
- Groups and Manifolds, University of Regensburg, September 25th-29th 2017.
- Interactions between Low-dimensional Topology and Complex Algebraic Geometry, Oberwolfach, October 23rd-27th 2017.
- Boyerfest: Characters in low-dimensional topology, Montréal Canada, June 2th - 6th (2018)
- Growth in Topology and Number Theory: Volumes, Entropy, and L^2-torsion, Hausdorff Institute Bonn, July 9th-13th 2018.
- Conference and summer school: Gauge theory and applications, University of Regensburg, July 17th to July 27th (2018)
- Topology of Manifolds: interactions between high and low dimensions, MATRIX institute, Creswick Australia, January 7th - 18th (2019).
- Invariants and structures in low-dimensional topology, joint workshop at Oberwolfach and the MATRIX institute, September 6th-11th (2021).

Grants

- Graduiertenkolleg Curvature, cycles and cohomology (2014-2019)
- DFG SFB 1085 Higher Invariants (2014-2021)
  project B06: The l^1-Seminorm on Homology and L^2-Torsion.

Committee work

- Teacher's training committee, University of Cologne, 2011-2013.
- Faculty search committee, University of Cologne, 2012.

- Studienplanungskommission, University of Regensburg, 2014-2019.
- Mitglied vom Lenkungsausschuss des Zentrums für Sprache und Kommunikation (ZSK), 2016–
- Fakultätsrat, University of Regensburg, 2017-2019.
- Faculty search committee, University of Regensburg, 2018.
- Schnupperstudium, 2016-2019.

Committee work
- Studiendekan (1.10.2019-30.9.2022)

Extended research stays
- *University of California at San Diego*, May 2003
- *University of Edinburgh*, June 2004
- *University of Edinburgh*, September and October 2006
- *MSRI, Berkeley*, March and April 2011
- *Université de Paris 7*, March 2012
- *University of Sydney*, March 2013
- *IISER Pune*, March 2014
- *University of Sydney*, April 2014
- *Hausdorff Institute in Bonn*, September-October 2016
- *Newton Institute Cambridge*, February-March 2017
- *Universidad autónoma de Madrid*, March 2018.

Language Skills

Fluent in German and English.
Good knowledge of French.
Reading proficiency in Italian and Spanish.
Medium reading proficiency in Czech.
Basic knowledge of Hebrew.

Referee for the following journals

Algebraic and Geometric Topology
Annali della Scuola Normale Superiore
Bulletin of the Malaysian Mathematical Sciences Society
Communications in Analysis and Geometry
Compositio Mathematica
Duke Mathematical Journal
Enseignement Mathématique
Experimental Mathematics
Forum Mathematicum
Geometry and Topology
Geometriy, Groups and Dynamics

Indiana University Mathematics Journal
International Journal of Mathematics
International Mathematical Research Notices
Inventiones
Israel Journal of Mathematics
Journal of Group Theory
Journal of Knot Theory and its Ramifications
Journal of Pure and Applied Algebra
Journal of the European Mathematical Society
Journal of Topology
Mathematical Proceedings of the Cambridge Philosophical Society
Mathematische Annalen
Mathematische Zeitschrift
Pacific Journal of Mathematics
Proceedings of the American Mathematical Society
Proceedings of the Edinburgh Mathematical Society