

Curriculum Vitae

Personal Data

Full name Priv.-Doz. Dipl.-Inf. Dr. Christoph Bernhard Koutschan
Date of birth 12.12.1978
Place of birth Dillingen an der Donau, Germany
Nationality German
Marital status Married, two children

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Education and Work Experience

05/2017 Habilitation in Mathematics, Johannes Kepler University Linz, Austria.
Thesis: *Quod Erat Demonstrandum: Proofs by Computer*
(evaluation committee: James H. Davenport, Christian Krattenthaler,
Marko Petkovšek, Bruno Salvy, Carsten Schneider, Nobuki Takayama)

09/2012 – Research scientist at the Johann Radon Institute for Computational and
Applied Mathematics (RICAM), Linz, Austria.

09/2011 – 08/2012 Postdoctoral researcher at Institut National de Recherche en Informatique
et en Automatique (INRIA), MSR-INRIA Joint Centre, Orsay, France.

09/2010 – 08/2011 Postdoctoral researcher at the Research Institute for Symbolic Computa-
tion (RISC), Linz, Austria.

10/2009 – 06/2010 Postdoctoral researcher at Tulane University, New Orleans, USA.

10/2005 – 09/2009 Ph.D. studies in symbolic computation at RISC, Johannes Kepler Univer-
sity Linz, Austria.
Ph.D. thesis: *Advanced Applications of the Holonomic Systems Approach*
(advisor: Univ.-Prof. Dr. Peter Paule)

- 10/1999 – 07/2005 Undergraduate studies in computer science (minor subject: mathematics), Friedrich-Alexander University of Erlangen-Nürnberg, Germany.
Diploma thesis: *Regular Languages and Their Generating Function: The Inverse Problem* (advisor: Prof. Dr. Volker Strehl)
- 07/1998 – 07/1999 Civil Service
- 06/1998 High school graduation (Abitur) in Coburg, Germany.

Career-Related Activities

- ▷ steering committee member for OPSFA (since 2022)
- ▷ program committee member at ISSAC 2022
- ▷ program committee member at FPSAC 2022
- ▷ session organizer at ACA 2021
- ▷ editorial board member of the Journal of Symbolic Computation
- ▷ guest editor for Integral Transforms and Special Functions
- ▷ program committee member at ISSAC 2020
- ▷ program committee member and session organizer at ICMS 2020
- ▷ editorial board member of Annals of Combinatorics
- ▷ member and treasurer of the work council of the Austrian Academy of Sciences
- ▷ organizer of the conference OPSFA15 (2019)
- ▷ program committee member at FPSAC 2019
- ▷ program committee member at SYNASC 2018
- ▷ session organizer at ICMS 2018
- ▷ program committee member at DART8 (2017)
- ▷ guest editor for Mathematics in Computer Science
- ▷ program committee member at ISSAC 2017
- ▷ session organizer at ACA 2017
- ▷ employee representative at RICAM
- ▷ session organizer at the Workshop on Symbolic Computation and Algebraic Statistics (Kyoto, 2016)
- ▷ session organizer at ICMS (International Congress on Mathematical Software, Berlin, 2016)
- ▷ poster committee member at ISSAC 2016
- ▷ co-organizer (with I. Georgieva, C. Hofreither, V. Pillwein, R. Uluchev) of the Workshop on Approximation Theory, CAGD, Numerical Analysis, and Symbolic Computation (Linz, 2015)
- ▷ co-organizer (with H. Hauser, G. Rond) of the Workshop on Approximation and Combinatorics (CIRM, Luminy, France, 2015)
- ▷ help with conference organization (ISSAC 2008, ACA 2008, FPSAC 2009)
- ▷ conduct one-week workshops for high school students (2007, 2008, 2009)
- ▷ member of DMV and ÖMG
- ▷ reviewer for Zentralblatt MATH and Mathematical Reviews
- ▷ contribute to the Online Encyclopedia of Integer Sequences (OEIS)

Awards

- ▷ 2021 Applications of Computer Algebra Early Researcher Award (ACA-ERA)
- ▷ 2016 David P. Robbins Prize of the American Mathematical Society (together with M. Kauers and D. Zeilberger)
- ▷ 2016 Distinguished Software Presentation Award at ISSAC

Third-Party Funding

- ▷ Security and Safety for Shared Artificial Intelligence (project part of FFG COMET-K2 centre, 2020–2023, 210,000 EUR)
- ▷ Certificate-free Summation and Integration (SFB project part F 5011-N15, 2017–2021, 345,539 EUR)
- ▷ Algebraic Statistics and Symbolic Computation (FWF stand-alone project P 29467-N32, 2016–2018, 155,904 EUR)

Patents

- ▷ Joachim Schöberl, Christoph Koutschan, Peter Paule. *Verfahren, Vorrichtung und Computerprogrammprodukt zur Bestimmung eines elektromagnetischen Nahfeldes einer Feldanregungsquelle eines elektrischen Systems (Method, device and computer program product for determining an electromagnetic near field of a field excitation source for an electrical system)*. European Patent EP2378444, US patent US8868382, 2015.

Publications

- [78] Manuel Kauers, Christoph Koutschan, George Spahn. $A_{348456}(4) = 7157114189$. Technical report no. 2022-23 in the RICAM Reports Series, 2022. Submitted for publication. arXiv: [2209.01787](https://arxiv.org/abs/2209.01787).
- [77] Ilias Kotsireas, Christoph Koutschan, Dursun Bulutoglu, Jonathan Turner. *Legendre pairs of lengths $\ell \equiv 0 \pmod{5}$ and $\ell = 85, \ell = 87$ cases*. Technical report no. 2022-05 in the RICAM Reports Series, 2022. Submitted for publication. arXiv: [2111.02105](https://arxiv.org/abs/2111.02105).
- [76] Manuel Kauers, Christoph Koutschan. *Guessing with little data*. In *Proceedings of the International Symposium on Symbolic and Algebraic Computation (ISSAC)*, pp. 83–90, 2022. ACM, New York, USA, ISBN 978-1-4503-8688-3. DOI: [10.1145/3476446.3535486](https://doi.org/10.1145/3476446.3535486), arXiv: [2202.07966](https://arxiv.org/abs/2202.07966).
- [75] Christoph Koutschan, Wadim Zudilin. *Apéry limits for elliptic L -values*. Bulletin of the Australian Mathematical Society **106**(2), pp. 273–279, 2022. DOI: [10.1017/S0004972721001295](https://doi.org/10.1017/S0004972721001295), arXiv: [2111.08796](https://arxiv.org/abs/2111.08796).
- [74] Anton Ponomarchuk, Christoph Koutschan, Bernhard Moser. *Unboundedness of linear regions of deep ReLU neural networks*. In *Database and Expert Systems Applications - DEXA 2022 Workshops*, Communications in Computer and Information Science **1633**, pp. 3–10, 2022. Springer. DOI: [10.1007/978-3-031-14343-4_1](https://doi.org/10.1007/978-3-031-14343-4_1).
- [73] Hao Du, Christoph Koutschan, Thotsaporn Thanatipanonda, Elaine Wong. *Binomial determinants for tiling problems yield to the holonomic ansatz*. European Journal of Combinatorics **99**, 103437, 2022. DOI: [10.1016/j.ejc.2021.103437](https://doi.org/10.1016/j.ejc.2021.103437), arXiv: [2105.08539](https://arxiv.org/abs/2105.08539).
- [72] Bernhard A. Moser, Michal Lewandowski, Somayeh Kargaran, Werner Zellinger, Battista Biggio, Christoph Koutschan. *Tessellation-filtering ReLU neural networks*. International Joint Conference on Artificial Intelligence **22**, 2022.

- [71] Robert Dougherty-Bliss, Christoph Koutschan, Doron Zeilberger. *Tweaking the Beukers integrals in search of more miraculous irrationality proofs à la Apéry*. The Ramanujan Journal **58**, pp. 973–994, 2022. DOI: [10.1007/s11139-021-00523-7](https://doi.org/10.1007/s11139-021-00523-7), arXiv: [2101.08308](https://arxiv.org/abs/2101.08308).
- [70] Youssef Abdelaziz, Salah Boukraa, Christoph Koutschan, Jean-Marie Maillard. *Diagonals of rational functions: from differential algebra to effective algebraic geometry*. Symmetry **14**(7), 1297, 2022. DOI: [10.3390/sym14071297](https://doi.org/10.3390/sym14071297), arXiv: [2002.00789](https://arxiv.org/abs/2002.00789).
- [69] Guy Katriel, Udi Mahanaymi, Christoph Koutschan, Doron Zeilberger, Mike Steel, Sagi Snir. *Gene transfer-based phylogenetics: analytical expressions and additivity via birth-death theory*. Technical report no. 2022.04.21.489106 in the bioRxiv, 2022. Submitted for publication. DOI: [10.1101/2022.04.21.489106](https://doi.org/10.1101/2022.04.21.489106).
- [68] Christoph Koutschan, Anton Ponomarchuk, Josef Schicho. *Approximation of convex polygons by polygons*. In *23rd International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC)*, pp. 91–98, 2021. DOI: [10.1109/SYNASC54541.2021.00026](https://doi.org/10.1109/SYNASC54541.2021.00026).
- [67] Shalosh B. Ekhad, Christoph Koutschan, Doron Zeilberger. *There are EXACTLY 1493804444499093354916284290188948031229880469556 ways to derange a standard deck of cards (ignoring suits) [and many other such useful facts]*. Enumerative Combinatorics and Applications **1**(3), #S2R17, 2021. arXiv: [2101.10147](https://arxiv.org/abs/2101.10147).
- [66] Ilias Kotsireas, Christoph Koutschan. *Legendre pairs of lengths $\ell \equiv 0 \pmod{3}$* . Journal of Combinatorial Designs **29**(12), pp. 870–887, 2021. DOI: [10.1002/jcd.21806](https://doi.org/10.1002/jcd.21806), arXiv: [2101.03116](https://arxiv.org/abs/2101.03116).
- [65] Christoph Koutschan, Elaine Wong. *Creative telescoping on multiple sums*. Mathematics in Computer Science **15**(3), pp. 483–498, 2021. DOI: [10.1007/s11786-021-00514-3](https://doi.org/10.1007/s11786-021-00514-3), arXiv: [2010.08889](https://arxiv.org/abs/2010.08889).
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- [63] Christoph Koutschan. *Holonomic anti-differentiation and Feynman amplitudes*. In *Anti-Differentiation and the Calculation of Feynman Amplitudes*, Texts & Monographs in Symbolic Computation, pp. 261–277, 2021. Springer, ISBN 978-3-030-80218-9, ISSN 0943-853X. DOI: [10.1007/978-3-030-80219-6_11](https://doi.org/10.1007/978-3-030-80219-6_11).
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- [61] Ronny Ramlau, Christoph Koutschan, Bernd Hofmann. *On the singular value decomposition of n -fold integration operators*. In *Inverse Problems and Related Topics*, Springer Proceedings in Mathematics & Statistics **310**, pp. 237–256, 2020. Springer, ISSN 2194-1009, ISBN 978-981-15-1591-0. DOI: [10.1007/978-981-15-1592-7_11](https://doi.org/10.1007/978-981-15-1592-7_11), arXiv: [1811.11642](https://arxiv.org/abs/1811.11642).
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- [46] Jose Capco, Matteo Gallet, Georg Grasegger, Christoph Koutschan, Niels Lubbes, Josef Schicho. *Computing the number of realizations of a Laman graph*. *Electronic Notes in Discrete Mathematics (Proceedings of Eurocomb 2017)* **61**, pp. 207–213, 2017. DOI: [10.1016/j.endm.2017.06.040](https://doi.org/10.1016/j.endm.2017.06.040), arXiv: [1707.03633](https://arxiv.org/abs/1707.03633).
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- [1] Christoph Koutschan. *Regular languages and their generating functions: the inverse problem*. Master thesis (Diplomarbeit), Friedrich-Alexander-Universität, Erlangen-Nürnberg, Germany, 2005.

Talks at Conferences

- 62. *Guessing with little data*. Contributed talk at ISSAC (47th International Symposium on Symbolic and Algebraic Computation), Université de Lille, France, July 6, 2022.
- 61. *Abzählformeln für Rauten-Parkettierungen mittels holonomem Ansatz*. Invited talk at the DMV-ÖMG Annual Conference, University of Passau, Germany, September 27, 2021.
- 60. *Realizations of rigid graphs*. Invited talk at ADG (13th International Conference on Automated Deduction in Geometry), September 15, 2021.
- 59. *Automated proofs of mathematical identities*. Contributed talk at SCSS (9th International Symposium on Symbolic Computation in Software Science), September 10, 2021.
- 58. *Binomial determinants for tiling problems yield to the holonomic ansatz*. Invited talk at Combinatorics and Algebras from A to Z, July 29, 2021.
- 57. *Holonomic Integration*. Invited talk at the Workshop on Antidifferentiation and the Calculation of Feynman Amplitudes, DESY Zeuthen, Germany, October 6, 2020.
- 56. *Diagonals of rational functions*. Invited talk at DART X (Differential Algebra and Related Topics), City University New York, USA, February 10, 2020.
- 55. *Computer algebra for basic hypergeometric functions*. Invited talk at OPSFA (15th International Symposium on Orthogonal Polynomials, Special Functions, and Applications), RISC, Hagenberg, Austria, July 24, 2019.
- 54. *Diagonals, determinants, and rigidity*. Invited talk at the Conference on Applied Algebraic Geometry (Minisymposium “Symbolic Combinatorics”), University of Bern, Switzerland, July 12, 2019.
- 53. *Enumeration of diagonally symmetric alternating sign matrices*. Invited talk at Transient Transcendence in Transylvania, Braşov, Romania, May 13, 2019.
- 52. *Symbolic evaluation of determinants and rhombus tilings of holey hexagons*. Contributed talk at the Workshop on Enumerative Combinatorics, Mathematisches Forschungsinstitut Oberwolfach, Germany, May 15, 2018.
- 51. *Symbolic evaluation of determinants and rhombus tilings of holey hexagons*. Invited talk at the Workshop on Computer Algebra in Combinatorics, Erwin Schrödinger Institut (ESI), Vienna, Austria, November 16, 2017.
- 50. *Computer algebra in the q -calculus*. Invited talk at the Combinatorics meeting on the occasion of Johann Cigler's 80. birthday, University of Vienna, Austria, October 25, 2017.
- 49. *Symbolic evaluation of determinants and rhombus tilings of holey hexagons*. Invited talk at the ALEA in Europe Workshop, Technical University of Vienna, Austria, October 12, 2017.
- 48. *Reduction-based creative telescoping for D -finite functions*. Invited talk at Lattice walks at the Interface of Algebra, Analysis and Combinatorics, Banff International Research Station, Canada, September 19, 2017.

47. *Computing the number of realizations of Laman graphs.* Invited talk at the CMAPT (Workshop on Computational Mathematics and Approximation Theory), RICAM, Linz, Austria, September 8, 2017.
46. *Constructing linkages for drawing plane curves.* Invited talk at ACA (23rd Conference on Applications of Computer Algebra), Jerusalem College of Technology, Jerusalem, Israel, July 21, 2017.
45. *Two facets of computational mathematics: numerics and symbolics.* Invited talk at the ERCOM Meeting, RICAM, Austria, April 28, 2017.
44. *Reduction-based creative telescoping for algebraic functions.* Invited talk at the Workshop on Algebraic Statistics and Symbolic Computation, Research Institute for Mathematical Sciences (RIMS), Kyoto University, Japan, July 28, 2016.
43. *Inverse inequality estimates with symbolic computation.* Invited talk at the Waterloo Workshop on Computer Algebra, Wilfrid Laurier University, Waterloo, Canada, July 23, 2016.
42. *Motion polynomials and planar linkages.* Software presentation at ISSAC (41st International Symposium on Symbolic and Algebraic Computation), Wilfrid Laurier University, Waterloo, Canada, July 20, 2016.
41. *Minimally rigid graphs.* Invited talk at MICA (Milestones in Computer Algebra — Celebrating the Research of Erich Kaltofen), University of Waterloo, Canada, July 16, 2016.
40. *Effective algebraic analysis approach to linear systems over Ore algebras.* Invited talk at ICMS (5th International Congress on Mathematical Software), Zuse Institute Berlin, Germany, July 12, 2016.
39. *Inverse inequality estimates with symbolic computation.* Invited talk at the Workshop on Analysis and Advanced Numerical Methods for Partial Differential Equations, Strobl, Austria, July 8, 2016.
38. *Symbolic determinant evaluation.* Invited talk at the Workshop on Algebra, Geometry and Proofs in Symbolic Computation, Fields Institute, Toronto, Canada, December 15, 2015.
37. *Planar linkages following a prescribed motion.* Invited talk at the Workshop on Approximation Theory, CAGD, Numerical Analysis, and Symbolic Computation, Linz, Austria, August 25, 2015.
36. *Pushing forward the dimension of fcc lattices.* Invited talk at the Sixth International Workshop on Differential Algebra and Related Topics (DART-VI, embedded conference of ICIAM), China National Convention Center, Beijing, China, August 10, 2015.
35. *Computer-algebra-based MIMO performance analysis.* Invited talk at the SIAM Conference on Applied Algebraic Geometry, National Institute for Mathematical Sciences (NIMS), Daejeon, South Korea, August 7, 2015.
34. *Pushing forward the dimension of fcc lattices.* Invited talk at SIAM-OPSFA (13th International Symposium on Orthogonal Polynomials, Special Functions & Applications), National Institute of Standards and Technology (NIST), Gaithersburg, USA, June 2, 2015.
33. *Multivariate D -finite and holonomic functions.* Invited talk at the Workshop on Approximation and Combinatorics, Centre international de rencontres mathématiques (CIRM), Luminy, France, April 23, 2015.
32. *Planar linkages following a prescribed motion.* Invited talk at the Computer Algebra Seminar, Kobe University, Japan, March 8, 2015.
31. *Software demo: the HolonomicFunctions package.* Invited talk at the Workshop on computational and algebraic methods in statistics, University of Tokyo, Japan, March 3, 2015.
30. *q -shift operators in knot theory.* Invited talk at the Symbolic Analysis Workshop at FoCM (Foundations of Computational Mathematics), Universidad de la República, Montevideo, Uruguay, December 16, 2014.

29. *Creative telescoping*. Invited talk at the Workshop on geometric control and related fields, RICAM, Linz, Austria, November 17, 2014.
28. *Symbolic computation in knot theory*. Invited talk at the Workshop on Approximation Theory, CAGD, Numerical Analysis, and Symbolic Computation, Sozopol, Bulgaria, August 27, 2014.
27. *A generalized Apagodu-Zeilberger algorithm*. Contributed talk at ISSAC (39th International Symposium on Symbolic and Algebraic Computation), Kobe University, Japan, July 23, 2014.
26. *On the AJ conjecture of connected sums of knots*. Invited talk at the Programme on Combinatorics, Geometry, and Physics, Erwin Schrödinger Institut (ESI), Vienna, Austria, July 17, 2014.
25. *A rational perspective on holonomic functions*. Invited talk at CASTA (Computational Algebraic Statistics, Theories and Applications), Kyoto, Japan, January 22, 2014.
24. *A glimpse of noncommutative Gröbner bases*. Invited talk at the conference Gröbner Bases, Resultants and Linear Algebra, RISC, Johannes Kepler University Linz, Austria, September 6, 2013.
23. *Holonomic functions in Mathematica*. Software presentation at ISSAC (38th International Symposium on Symbolic and Algebraic Computation), Northeastern University, Boston, Massachusetts, USA, June 27, 2013.
22. *Holonomicity and properness are equivalent*. Contributed talk at LARD (Linz Algebra Research Day), Johannes Kepler University Linz, Austria, June 19, 2013.
21. *Zeilberger's holonomic ansatz for Pfaffians*. Contributed talk at ISSAC (37th International Symposium on Symbolic and Algebraic Computation), University of Grenoble, France, July 24, 2012.
20. *Twisting q -holonomic sequences by complex roots of unity*. Contributed talk at ISSAC (37th International Symposium on Symbolic and Algebraic Computation), University of Grenoble, France, July 23, 2012.
19. *Twisting q -holonomic sequences by complex roots of unity*. Invited talk at ACA (18th International Conference on Applications of Computer Algebra), Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences, Sofia, Bulgaria, June 28, 2012.
18. *The face-centered cubic lattice*. Invited talk at FELIM (Functional Equations in LIMoges), Faculty of Sciences and Techniques of the University of Limoges, France, March 5, 2012.
17. *Advanced computer algebra for evaluating determinants*. Contributed talk at JNCF (Journées Nationales de Calcul Formel), CIRM Luminy (Marseille), France, November 16, 2011.
16. *Lattice Green's functions of the higher-dimensional face-centered cubic lattices*. Invited talk at the Conference on Applied Algebraic Geometry (Minisymposium "Symbolic Combinatorics"), North Carolina State University, Raleigh, North Carolina, USA, October 6, 2011.
15. *Lattice Green's functions of the higher-dimensional face-centered cubic lattices*. Invited talk at CSASC (Joint Mathematical Conference of the Austrian Mathematical Society together with the Catalan, Czech, Slovak, and Slovenian Mathematical Societies, Minisymposium "Combinatorics and Graph Theory"), Donau-Universität Krems, Austria, September 27, 2011.
14. *Lattice Green's functions*. Invited talk at ACA (17th International Conference on Applications of Computer Algebra), Lamar University, Houston, Texas, USA, June 28, 2011.
13. *Software for special functions*. Invited talk at ICASF (International Conference on Asymptotics and Special Functions), City University of Hong Kong, China, June 1, 2011.

12. *Computer algebra tools for summation and integration*. Invited talk at CMIC (Chiang Mai International Conference), Chiang Mai University, Thailand, January 6, 2011.
11. *Algorithmic combinatorics: symbolic summation and integration*. Tutorial at CMIC (Chiang Mai International Conference), Chiang Mai University, Thailand, January 4–5, 2011.
10. *Proof of the q -TSP Conjecture*. Contributed talk at SLC 65 (Séminaire Lotharingien de Combinatoire), Strobl, Austria, September 13, 2010.
9. *Proof of George Andrews' and David Robbins' q -TSP Conjecture*. Contributed talk at the Conference in Honor of Doron Zeilberger's 60th Birthday, Rutgers University, New Jersey, USA, May 27, 2010.
8. *Holonomic Functions*. Software presentation at FPSAC (21st International Conference on Formal Power Series and Algebraic Combinatorics), RISC, Johannes Kepler University Linz, Austria, July 22, 2009.
7. *Think Big (or how to tackle hard problems with the holonomic systems approach)*. Invited talk at the Summation Workshop, RISC, Johannes Kepler University Linz, Austria, July 19, 2009.
6. *Algorithmic proving of special function identities in Mathematica*. Invited talk at ACA (15th International Conference on Applications of Computer Algebra), École de technologie supérieure, Montréal, Canada, June 26, 2009.
5. *A difference operators attack on hard combinatorial problems*. Invited talk at ACA (15th International Conference on Applications of Computer Algebra), École de technologie supérieure, Montréal, Canada, June 25, 2009.
4. *How to prove the q -TSP Conjecture?* Invited talk at the AMS Joint Mathematics Meeting, Washington DC, USA, January 5, 2009.
3. *Proof of Ira Gessel's lattice path conjecture*. Contributed talk at SLC 61 (Séminaire Lotharingien de Combinatoire), Curia, Portugal, September 24, 2008.
2. *Holonomic function identities*. Invited talk at ACA (14th International Conference on Applications of Computer Algebra), RISC, Johannes Kepler University Linz, Austria, July 27, 2008.
1. *Proof of Ira Gessel's lattice path conjecture*. Invited talk at SNSC (4th International Conference on Symbolic and Numerical Scientific Computing), RISC, Johannes Kepler University Linz, Austria, July 25, 2008.

Peer-Reviewing Activities

For each journal and conference the number of completed reviews is given in parentheses.

- ▷ ISSAC (26)
- ▷ Journal of Symbolic Computation (13)
- ▷ Journal of Physics A: Mathematical and Theoretical (8)
- ▷ Journal of Combinatorial Theory, Series A (5)
- ▷ Journal of Mathematical Analysis and Applications (4)
- ▷ Advances in Applied Mathematics (3)
- ▷ Electronic Journal of Combinatorics (3)
- ▷ Journal of Difference Equations and Applications (3)
- ▷ CASC (2)
- ▷ Discrete Mathematics (2)
- ▷ European Journal of Combinatorics (2)

- ▷ FPSAC (2)
- ▷ Springer Proceedings in Mathematics & Statistics (2)
- ▷ Acta Physica Polonica A (1)
- ▷ Ain Shams Engineering Journal (1)
- ▷ American Mathematical Monthly (1)
- ▷ Ars Mathematica Contemporanea (1)
- ▷ Applicable Algebra in Engineering, Communication and Computing (1)
- ▷ Computational Methods and Function Theory (1)
- ▷ Discrete & Computational Geometry (1)
- ▷ Experimental Mathematics (1)
- ▷ Fluctuation and Noise Letters (1)
- ▷ Foundations of Computational Mathematics (1)
- ▷ International Journal of Computer Mathematics (1)
- ▷ International Journal of Theoretical Physics (1)
- ▷ Inventiones Mathematicae (1)
- ▷ Journal of Algebraic Statistics (1)
- ▷ Journal of Complexity (1)
- ▷ Journal of Computer and System Sciences (1)
- ▷ Journal of Integer Sequences (1)
- ▷ Journal of Number Theory (1)
- ▷ Journal of Systems Science & Complexity (1)
- ▷ Journal of the London Mathematical Society (1)
- ▷ Lecture Notes in Computer Science (1)
- ▷ L'Enseignement Mathématique (1)
- ▷ Mathematical Methods in the Applied Sciences (1)
- ▷ Mathematics in Computer Science (1)
- ▷ Reports on Mathematical Physics (1)
- ▷ SIGMA (1)
- ▷ Theoretical Computer Science (1)
- ▷ Transactions of the AMS (1)
- ▷ Transactions on Mathematical Software (1)

Teaching

Semester	School	Type	Title
S 2022	JKU	Lecture	Algebra für InformatikerInnen
	FHH	Lecture	Mathematik 1 – Algebra
W 2021	JKU	Lecture	Mathematik 1 für Mechatronik, Kunststofftechnik, Elektronik und Informationstechnik, Medical Engineering, Maschinenbau
	FHH	Lecture	Logische und formale Grundlagen der Informatik
S 2021	JKU	Lecture	Algebra für InformatikerInnen

	FHH	Lecture	Mathematik 1 – Algebra
W 2020	FHH	Lecture	Logische und formale Grundlagen der Informatik
S 2020	JKU	Lecture	Algebra für InformatikerInnen
	FHH	Lecture	Mathematik 1 – Algebra
W 2019	JKU	Exercises	Mathematik und Logik
	FHH	Lecture	Logische und formale Grundlagen der Informatik
S 2019	JKU	Exercises	Algebra für InformatikerInnen
	FHH	Lecture	Mathematik 1 – Algebra
W 2018	FHH	Lecture	Logische und formale Grundlagen der Informatik
S 2018	JKU	Lecture	Mathematik 2 für Mechatronik, Kunststofftechnik, Elektronik und Informationstechnik
	FHH	Lecture	Mathematik 1 – Algebra
W 2017	JKU	Lecture	Mathematik 1 für Mechatronik, Kunststofftechnik, Elektronik und Informationstechnik
	FHH	Lecture	Logische und formale Grundlagen der Informatik
S 2017	JKU	Exercises	Algebra für InformatikerInnen
	FHH	Lecture	Mathematik 1 – Algebra
W 2016	FHH	Lecture	Logische und formale Grundlagen der Informatik
S 2016	JKU	Exercises	Lineare Algebra und Analytische Geometrie 2
	FHH	Lecture	Mathematik 1 – Algebra
W 2015	JKU	Exercises	Lineare Algebra und Analytische Geometrie 1
	JKU	Exercises	Mathematik und Logik für Wirtschaftsinformatiker
	FHH	Lecture	Logische und formale Grundlagen der Informatik
S 2015	FHH	Lecture	Mathematik 1 – Algebra
W 2014	FHH	Lecture	Logische und formale Grundlagen der Informatik
W 2013	JKU	Lecture	Knot Theory and Computer Algebra
	JKU	Exercises	Analysis (Mathematik 2 für Informatiker)
	FHH	Lecture	Logische und formale Grundlagen der Informatik
W 2012	JKU	Exercises	Analysis (Mathematik 2 für Informatiker)
	FHH	Lecture	Logische und formale Grundlagen der Informatik
W 2011	FHH	Lecture	Logische und formale Grundlagen der Informatik
W 2010	JKU	Lecture	Computer Algebra Systems
	JKU	Exercises	Analysis (Mathematik 2 für Informatiker)
	FHH	Exercises	Logische und formale Grundlagen der Informatik
W 2008	JKU	Lecture	Computer Algebra Systems
	JKU	Exercises	Analysis für Informatiker
W 2007	JKU	Exercises	Berechenbarkeit und Komplexität
S 2007	JKU	Exercises	Analysis für Informatiker
W 2006	JKU	Exercises	Formale Grundlagen 2
S 2005	FAU	Exercises	Einführung in die Theoretische Informatik II

S 2004	FAU	Exercises	Einführung in die Theoretische Informatik III
W 2003	FAU	Exercises	Einführung in die Theoretische Informatik II
	FAU	Exercises	Mathematik für Ingenieure I
S 2003	FAU	Exercises	Einführung in die Theoretische Informatik III
W 2002	FAU	Exercises	Mathematik für Ingenieure III
	FAU	Exercises	Organisation und Technologie von Rechensystemen I
S 2002	FAU	Exercises	Mathematik für Ingenieure II
W 2001	FAU	Exercises	Mathematik für Ingenieure I

FAU = Friedrich-Alexander-Universität Erlangen-Nürnberg

FHH = Fachhochschule Hagenberg

JKU = Johannes Kepler Universität Linz

Software

- ▷ **LamanGraphs**, a Mathematica package and C++ implementation for constructing Laman graphs and for computing their embedding numbers.
- ▷ **PlanarLinkages**, a Mathematica package for constructing and visualizing planar linkages that follow a prescribed curve (or motion), including arithmetic and factorization of motion polynomials.
- ▷ Member of the development team of DDMF (Dynamic Dictionary of Mathematical Functions), see <http://ddmf.msr-inria.inria.fr>.
- ▷ **GradshteynRyzhik**, a package for extracting all formulas from the book by Gradshteyn and Ryzhik, and for translating them into the Mathematica language.
- ▷ **HolonomicFunctions**, a Mathematica package for dealing with multivariate holonomic functions and sequences, in particular for executing closure properties, evaluating sums and integrals involving special functions, finding relations for a given function, etc.
- ▷ **qGeneratingFunctions**, a Mathematica package for manipulations of univariate q -holonomic functions and sequences.
- ▷ **RLangGFun**, a Maple implementation of the inverse Schützenberger methodology (a constructive version of Soittola's Theorem).