

Curriculum vitae

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Spain *www* : <http://pageperso.lif.univ-mrs.fr/~kolja.knauer/>
Place and Date of Birth : Oldenburg, Germany | 5 August 1980
Citizenship : German

EMPLOYMENT, SCHOLARSHIPS, AND AFFILIATIONS

Departament de Matemàtiques i Informàtica, Universitat de Barcelona, Spain

Ramón y Cajal research position **Sept 2019 – present**
affiliated to *Centre de Recerca Matemàtica* **July 2023 – present**
affiliated to *Institut de Matemàtica UB* **June 2020 – present**

LIS, Université Aix-Marseille, France

Maître de conférences (associate professor) **Sept 2014 – Sept 2019**
Délégation CNRS (teaching free research year) **Sept 2018 – Sept 2019**
Individual PEPS research grant EROS **Jan 2015 – Dec 2015**

LIRMM, Université Montpellier 2, France

PostDoc in the ANR project EGOS **Jan 2014 – Aug 2014**

I3M, Université Montpellier 2, France

PostDoc in the ANR project TEOMATRO **Jan 2013 – Dec 2013**

Technische Universität Berlin, Germany

Post Doctoral Research Assistant **Mar 2011 – Dec 2012**
Project of ESF (European Science Foundation) **July 2011 – Dec 2012**
Graph Drawings and Representations
Teaching Assistant **Mar 2011 – July 2011**
Postgraduate Scholarship of DFG (German Science Foundation) **Sept 2007 – Nov 2010**
Research Training Group *Methods for Discrete Structures*
Scholarship of DAAD (German Academic Exchange Service) **Mar 2004 – Mar 2005**
CINVESTAV, Mexico.

DEGREES

Aix-Marseille Université, France

Habilitation à diriger des recherches (**HDR**) **Dec 2021**
Thesis : Oriented matroids and beyond : complexes, partial cubes, and corners.
Reviewers : Sandi Klavžar, Jorge Ramirez-Alfonsin, Ilda da Silva.
Jury : Victor Chepoi, Louis Esperet, Jesus de Loera, Yann Vaxès.

Technische Universität Berlin, Germany

Dr. rer. nat. Summa Cum Laude (**Ph.D.**, Mathematics, *with highest distinction*) **Nov 2010**

Thesis : Lattices and Polyhedra from Graphs.

Supervisors : Stefan Felsner and Michael Joswig.

Area of Study : Graphs, Orders, Discrete Geometry, Algorithms.

Diploma (**M.Sc.**)

Aug 2007

Thesis : Partial Orders on Orientations via Cycle Flips.

Supervisors : Stefan Felsner and Günter M. Ziegler.

Major field of study : Algorithmic Discrete Mathematics.

Subsidiary fields of study : Differential Geometry, Functional Analysis, Philosophy of Science.

SUPERVISION AND TEACHING

SUPERVISION

I have always enjoyed leading a student into research. I co-advised **three PhD students** 50% and one **Postdoctoral fellow** 100%. Currently, I am co-advising one PhD student.

PhD thesis co-advisor for *Gil Puig i Surroca* Paris **2022-2026**

PhD thesis co-advisor for *Manon Philibert* Aix-Marseille **2018-2021**

Manon won the *prix de thèse Charles Delorme* and *prix de thèse d'Aix-Marseille Université* where she still has a teaching position.

PhD thesis co-advisor for *Sarah Blind* Université de Lorraine **2017-2019**

Sarah is now a research engineer at Université de Lorraine.

PhD thesis co-advisor for *Tilen Marc* Ljubljana **2015-2018**

Tilen is now half-time at Ljubljana University and half time in a software company developing tools for cryptography.

Postdoctoral advisor for *Ignacio Garcia-Marco* Aix-Marseille **2017**

Ignacio now has a full position at Universidad de La Laguna, Spain.

Master's thesis on *Semigroup Cayley graphs* Universitat de Barcelona **2023**

Bachelor's thesis on *Endomorphism breaking* Universitat de Barcelona **2023**

Bachelor's thesis on *k-tree generation* Universitat de Barcelona **2023**

Bachelor's thesis on *Monoid Cayley graphs* Universitat de Barcelona **2023**

Bachelor's thesis on *Counterexamples with machine learning* Universitat de Barcelona **2022**

Bachelor's thesis on *Outerplanar partial cubes* Universitat de Barcelona **2022**

Emmy Noether prize (ex aequo) from Societat Catalana de Matemàtiques

Bachelor's thesis on *Coverings of generalized Petersen graphs* Universitat de Barcelona **2022**

Bachelor's thesis on *Woodall's conjecture* Universitat de Barcelona **2022**

Bachelor's thesis on *enumeration of k-connected orientations* Universitat de Barcelona **2021**

Master's thesis on *lattice path polytopes* Universidad de los Andes **2021**

Master's thesis on *symmetries in partial cubes* Universitat de Barcelona **2020**

Master's thesis (ENS-Lyon) on *drawing graphs in convex position* Aix-Marseille **2018**

Research internship (ECM) on <i>Cayley posets</i>	Aix-Marseille 2017
Research internship on <i>Cayley graphs</i>	Aix-Marseille 2017
Research internship on <i>weakly stable marriages</i>	Aix-Marseille 2017
Master's thesis on <i>generation of graph orientations</i>	Aix-Marseille 2017
Research internship (ENS-Cachan) on <i>planar partial cubes</i>	Aix-Marseille 2016
Research internship on <i>enumeration of strong orientations</i>	Aix-Marseille 2016
Master's thesis on <i>toroidal domino tilings</i>	Aix-Marseille 2015
Bachelor's thesis on <i>toroidal flip graphs</i>	TU Berlin 2012
Master's thesis on <i>stable marriages</i>	TU Berlin 2012
Bachelor's thesis on <i>non-planar α-orientations</i>	TU Berlin 2010

TEACHING

My position on Barcelona is mostly research based with a total teaching load of 80hrs per year. However, in Barcelona I am redesigning the graph course for second year students, with attached programming courses. Moreover, in spring 2021 together with Miguel Angel Fiol Mora and Juilan Pfeifle we taught a 3-months online PhD-course in the framework of the Barcelona Graduate School of Mathematics (BGSMath). We had over 50 participants from all over the world. Furthermore, I have given a course on posets, polynomials, and polytopes at an École jeunes chercheurs en informatique mathématique in 2019.

Masters' and PhD level :

PhD-course <i>Algebraic graph theory</i> [20h/English]	BGSMath 2021
Course <i>Lattices and posets</i> [3h/French]	Aix-Marseille 2021
Lecturer on <i>Combinatorial Cowork Space</i> [3h/English]	2020
Lecturer on <i>École jeunes chercheurs en informatique mathématique</i> [3h/French]	CIRM 2019
Course <i>Graphs : Geometry and Topology</i> [English]	TU Berlin 2012
Seminar <i>Graph Drawing</i> (Mentoring & Organization) [English]	TU Berlin 2012
Course <i>Combinatorics I</i> (Lectures & Exercises) [English]	TU Berlin 2011
Seminar <i>Topics in Combinatorics</i> (Mentoring) [German]	TU Berlin 2011
Seminar <i>Matroid Theory</i> (Mentoring & Organization) [English]	TU Berlin 2010
Seminar <i>Tilings</i> (Mentoring) [German]	TU Berlin 2009
Seminar <i>Markov Chains and Random Sampling</i> (Mentoring) [German]	TU Berlin 2008
Seminar <i>Algebraic Graph Theory</i> (Mentoring & Organization) [German]	TU Berlin 2007
Course <i>Introduction to Matroids</i> (Lectures) [Spanish]	CINVESTAV Mexico 2005

Bachelors :

Course <i>Graphs and Python</i> [English]	Barcelona 2022-23
Course <i>Graphs and C++</i> [English]	Barcelona 2020-21
Course <i>Graphs</i> [French]	Aix-Marseille 2015-18
Course <i>Introduction to Informatics and C++</i> [French]	Aix-Marseille 2014-17

RESPONSABILITIES

I am one of three **editors-in-chief of Annals of Combinatorics**, section editor of Discrete Math and Theoretical Computer Science, and one of two editors of Birkhäuser's Mathematics Study Resources series, where German language mathematics books have to be selected, reviewed and translated for the English language market.

Editor for Birkhäuser's Mathematics Study Resources Series	2021 – present
Editor-in-chief of Annals of Combinatorics	2019 – present
Section editor <i>Combinatorics</i> of DMTCS	2018 – present
Program committee WEPA	2022
External reviewer for ANR, Polish Academy of Science, Marie Curie	2018 – present
PhD reviewer for Eric Pauli Perez Contreras at UNAM Mexico	2020
Reviewer for bookd, journals and conference proceedings : Aequ. Math., ADAM, ALDAM2020, Cambridge University Press, Comput. Geom., Combinatorica, Discrete Comput. Geom., Discrete Appl. Math., Discrete Math., Discuss. Math. Graph Theory, Discrete Math. Theor. Comput. Sci., EuroCG23, EuroComb2019, Eur. J. Combin., Electron. J. Comb., FPSAC2018, FPSAC2019, GD2016, GD2018, Inf. Process. Lett., JCTB, JGT, JMD2016, J. Graph Algorithms Appl., LAGOS2017, LATIN2018, Mathematika, Mathematische Zeitschrift, ORDER, RIMA, SoCG2017, SoCG2020, SoCG2023, SIDMA, STACS2020, Theor. Comput. Sci., WG2015, WG2018, WG2019, ZentralblattMATH.	

Selected talks

<i>Some problems in Cayley graphs and computational approaches</i>	September 2023
Information technologies – Applications and Theory Conference, Tatraske Lomnica, Slovakia. invited speaker	
<i>Never trust a partial cube</i>	September 2022
Maribor Graph Theory Conference, Maribor, Slovenia. keynote speaker	
<i>SAMple COMpression</i>	December 2021
Metric Graph Theory, Marseille, France. invited speaker	
<i>Complete Acyclic Colorings</i>	November 2019
French Latin-American Conference on New Trends in Applied Mathematics, Santiago, Chile invited speaker	
<i>Oriented Matroids and Beyond</i>	Feb 2018
Séminaire Francilien de Géométrie Algorithmique et Combinatoire; Institut Henri Poincaré, Paris, France invited speaker	
<i>Oriented Matroids and Beyond</i>	Nov 2017
Journées Graphes et Algorithmes; Bordeaux, France plenary speaker	
<i>On Topo Graphs of Complexes of Oriented Matroids</i>	Aug 2017
Pacific Rim Mathematical Association Congress; Oaxaca, Mexico invited to the Discrete Math session	

SIAM Conference on Discrete Mathematics; Austin, USA

Invited to the Mini-symposium on Posets by Tom Trotter

CONTRACTS AND COLLABORATIONS

My current position together with a 40000€ research grant is paid by the Ramón y Cajal scholarship - a highly competitive Spanish grant. In my year it was given to only 5 out of over 130 applicants in Mathematics all over Spain. I have been PI of several (some of them individual) projects, the biggest one just started :

MICINN project ACoGe : Algebraic combinatorics and its connections to geometry	2023
PI, members : 7, duration : 4 years, amount : 150000 €	
CIMPA research in pairs with C. Benedetti <i>Lattice path matroids and quotients</i>	2022
PI, members : 2, duration : 6 weeks, amount : 6000 €	
Ramón y Cajal research grant <i>Combinatorics and Geometry</i>	2019
PI, duration : 5 years, amount : 40000 €	
Delegation CNRS <i>Oriented matroids and beyond</i>	2018
PI, duration : 1 year, relief from teaching	
Individual PEPS research grant <i>Efficient Representation of Oriented Structures</i>	2015
PI, duration : 1 year, amount : 6000 €	

Furthermore, I am/was member of the following projects :

ANR DAGDigDec <i>DAGs and Digraph Decompositions</i>	2022
members : 7, duration : 4 years, amount : 176736 €	
IN2SI project ACDG <i>ACyclicité dans les (Di)Graphes</i>	2021
members : 6, duration : 11 months, amount : 7500 €	
MICINN ALCOIN <i>Álgebra Conmutativa y sus interacciones</i>	2020
members : 6, duration : 3 years, amount : 46343 €	
ANR CAPPS <i>Combinatorial Analysis of Polytopes and Polyhedral Subdivisions</i>	2017
members : 6, duration : 4 years, amount : 164160 €	
ANR DISTANCIA <i>Structures and algorithms of Metric Graph Theory</i>	2017
members : 24, duration : 4 years, amount : 320704 €	
ANR GATO <i>Graphes, Algorithmes et Topologie</i>	2017
members : 21, duration : 4 years, amount : 350803 €	
EuroGIGA research grant <i>Graph Drawings and Representations</i>	2011
members : 10, duration : 4 year, amount : 200000 €	

ORGANIZATION

I have been organizing regular research seminars first at TU Berlin and then for team ACRO at Marseille. Moreover, I have organized two international and one national workshop. Finally, I was the sole organizer of our online PhD-Course on Algebraic Graph Theory, with over 50 attendees from many countries.

Organizer of recurring meeting <i>Three Talks in Combinatorics</i> at UB	2022 – present
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Organizer Discrete Math Session <i>Barcelona Math days</i> at UB	2023
Organizer symposium <i>Stefan is 60</i>	2022
Organizer PhD course <i>Fragments of Algebraic Graph Theory</i> at BGSMath	2021
Organizer <i>DISTANCIA kick-off meeting</i>	2018
Organizer International Workshop on Graphs, Semigroups, and Semigroup Acts	2017
Organizer conference <i>Graph Drawings and Representations</i>	2012
Organizer of weekly research seminar <i>Réunion ACRO</i> at LIF Marseille	2015 – 2019
Organizer of weekly research seminar <i>Discrete Structures</i> at TU Berlin	2007 – 2013

COMMUNICATION

I have lectured on several dissemination events, one for math high school students in Berlin, another for math high school teachers in Switzerland, one for students of the ENS, a PhD Spring school at CIRM, a PhD course through BGSMath, and a dissemination event for first year students in Tenerife. The latter can be seen on [YouTube](#). I have coauthored an introductory book into discrete mathematics for computer science students and a book on Algebraic Graph Theory.

Lecturer PhD course <i>Fragments of Algebraic Graph Theory</i> at BGSMath	2021
Talk on the work on Laszlo Lovasz at Instituto de Matematicas Barcelona	2021
Lecturer on <i>Combinatorial Cowork Space</i>	2020
Lecturer on <i>Fisquito de Matematicas</i> (Event for first year students in La Laguna)	2020
Lecturer on <i>École jeunes chercheurs en informatique mathématique</i>	2019
Speaker on <i>Visite étudiants ENS Paris-Saclay</i> (Dissemination to strong students)	2017
Lecturer on <i>Colloque de la CRM</i> (Swiss continuous formation program for math teachers)	2017
Co-author : Introductory book to Discrete Mathematics for Computer Science students	2015
Co-author : Introductory book to Algebraic Graph Theory	2019
Speaker on <i>Tag der Mathematik</i> (Berlin math day for high-school students)	2012

MOBILITY

I have been based in Berlin, Montpellier, Marseille, and now Barcelona. My collaborations on an international level often lead to long and short research stays.

Long research stays and (invitation only) workshops

<i>Annual Workshop on Geometry and Graphs</i> , Bellairs Research Institute	Feb 2022/23
Universidad de La Laguna, Tenerife with Ignacio Garcia-Marco	July 2019, June 2021
<i>Combinatorial Cowork Space</i> Austria	Feb 2020
UNAM-Juriquilla, Mexico with Luis Montejano	Jan-Mar, Sept-Nov 2019
Ciążeń Palace, Poland Workshop : Order and Geometry	Sept 2018
ULB (Université Libre de Bruxelles) with Jean Cardinal	Mar 2018
MSRI, Berkeley Workshop : Geometric and Topological Combinatorics	Sept 2017
Jagiellonian University in Kraków with Piotr Micek	Mar – April 2009, May 2017

Gultowy Palace, Poland Workshop : Order and Geometry

Sept 2016

Universidad Nacional Autónoma de México with Ricardo Strausz

Nov 2010 – Feb 2011

CINVESTAV and UNAM with Isidoro Gitler and Ricardo Strausz

Nov 2008 – Jan 2009

Just to give a (quantitative) idea of the (also shorter) research visits that I have done, I list my **Research Seminar Talks** :

CIMAT Guanajuato, COATI Sophia Antipolis-Nice, Courant Institute NYU, DCG EPFL Lausanne, Goethe-Universität Frankfurt, Graphes en Rhône-Alpes et Auvergne (online), G-SCOP Grenoble, I3M Université Montpellier (2), IMJ Paris Jussieu, Jagiellonian University Kraków (4), Karlsruhe Institute of Technology (3), LaBRI Université Bordeaux, LIRMM Université Montpellier (3), LIP ENS Lyon, LIS Université Marseille (14), LIX École Polytechnique Palaiseau (3), Matroid Union (online), Technical University Berlin (22), Texas State San Marcos (2), UNAM Juriquilla (3), Universidad de La Laguna (4), Universidad de los Andes Bogota, Universidad Javeriana Bogota, Universitat de Barcelona (3), Université de Fribourg, Université Libre de Bruxelles, University of Ljubljana, Warwick DIMAP Seminar (online).

PUBLICATIONS

I have co-authored two books, one book chapter, 53 journal papers (two of which have been the most downloaded of their issue), the strongest journals being JCTA, JCTB(x3), COMBINATORICA, and SIAM Journal of Applied Dynamical Systems. Moreover, I have 22 publications at conferences, the strongest venue being SODA. Furthermore, 11 papers of mine are submitted.

Data Web of Science (Jan 2023)

Citations 239 (202 excl. citations by coauthors)
h-index : 10

Data Google Scholar (March 2023)

Citations 893 (585 since 2018)
h-index : 17 (13 since 2018)

Books

U. Knauer, K. Knauer.

Algebraic graph theory. Morphisms, monoids and matrices.

De Gruyter Studies in Mathematics Vol. 4. 1 XVIII, 329 pages, (2019).

U. Knauer, K. Knauer.

Diskrete und algebraische Strukturen - kurz gefasst.

Springer Spektrum, 271 pages, (2015).

Book chapter

K. Knauer.

Popopo - posets, polynômes, polytopes.

Informatique Mathématique, Une photographie en 2019, Jérémie Chalopin et Pierre Guillon (éd.), CNRS Éditions, (2019).

Journals

1. I. García-Marco, K. Knauer.

Beyond symmetry in generalized Petersen graphs,
Journal of Algebraic Combinatorics (accepted).

2. W. Hochstättler, S. Keip, K. Knauer.

Kirchberger's Theorem for Complexes of Oriented Matroids,
Linear Algebra and its Applications (accepted).

3. J. Cardinal, K. Knauer, P. Micek, D. Pálvölgyi T. Ueckerdt, N. Varadarajan.

Colouring bottomless rectangles and arborescences,
Computational Geometry : Theory and Applications (accepted).

4. K. Knauer, T. Marc.

Corners in oriented matroids and other partial cubes
European Journal of Combinatorics (accepted).

5. K. Knauer, Hoang La, P. Valicov.

Feedback vertex sets in (directed) graphs of bounded degeneracy or treewidth,
Electronic Journal of Combinatorics (accepted).

6. K. Knauer, G. Puig i Surroca.

On monoid graphs,
Mediterranean Journal of Mathematics (accepted).

7. I. García-Marco, K. Knauer.
On sensitivity in bipartite Cayley graphs,
Journal of Combinatorial Theory, Series B, 154, pages 211-238, (2022), **Q1**.
8. P. Aboulker, F. Havet, K. Knauer, C. Rambaud.
On the dichromatic number of surfaces,
Electronic Journal of Combinatorics, 29(1), p1.30, (2022).
9. V. Chepoi, K. Knauer, M. Philibert.
Ample completions of oriented matroids and complexes of uniform oriented matroids,
SIAM Journal of Discrete Mathematics, 36(1), pages 509-535, (2022).
10. S. Klavžar, K. Knauer, T. Marc.
On the Djoković-Winkler relation and its closure in subdivisions of fullerenes, triangulations, and chordal graphs,
MATCH Commun. Math. Comput. Chem., 86, pages 327-342, (2021).
11. I. García-Marco, G. Mercui-Voyant, K. Knauer.
Cayley posets,
Mediterranean Journal of Mathematics, 17(186), (2020).
12. S. Blind, K. Knauer, P. Valicov.
Enumerating k -arc-connected orientations
Algorithmica, 82, pages 3588–3603, (2020).
13. S. Felsner, W. Hochstättler, K. Knauer, R. Steiner.
Complete Acyclic Colorings,
Electronic Journal of Combinatorics, 27(2), p2.40, (2020).
14. V. Chepoi, K. Knauer, M. Philibert.
Two-dimensional partial cubes,
Electronic Journal of Combinatorics, 27 (40), p3.29, (2020).
15. O. Aichholzer, J. Cardinal, T. Huynh, K. Knauer, T. Mütze, R. Steiner, B. Vogtenhuber.
Flip distances between graph orientations,
Algorithmica, 83, pages 116-143 (2021).
16. V. Chepoi, K. Knauer, T. Marc.
Hypercellular graphs : partial cubes without Q_3^- as partial cube minor,
Discrete Mathematics, 343 (4), (2020).
17. G. Guégan, K. Knauer, J. Rollin, T. Ueckerdt.
The interval number of a planar graph is at most three,
Journal of Combinatorial Theory, Series B, 146, pages 61-67, (2021), **Q1**.
18. I. García-Marco, K. Knauer, L.P. Montejano.
Chomp on generalized Kneser graphs and others,
International Journal of Game Theory, (2019).
19. K. Knauer, T. Marc.
On tope graphs of complexes of oriented matroids,
Discrete & Computational Geometry, 63 (2), pages 377-417, (2020).
20. D. Gonçalves, K. Knauer, B. Lévêque.
On the Structure of Schnyder labelings on orientable surfaces,
Journal of Computational Geometry, 10 (1), pages 127-163, (2019).

21. K. Knauer, N. Nisse.
Computing metric hulls in graphs,
Discrete Mathematics & Theoretical Computer Science 21 (1), ICGT 2018, (2019).
22. A. V. Zhuchok, K. Knauer.
Abelian doppelsemigroups,
Algebra & Discrete Mathematics 26 (2), pages 290-304, (2019).
23. K. Knauer, P. Valicov.
Cuts in matchings of 3-connected cubic graphs,
European Journal of Combinatorics, 76, pages 27-36, (2019).
24. K. Knauer, T. Ueckerdt.
Decomposing 4-connected planar triangulations into two trees and one path,
Journal of Combinatorial Theory Series B, 134, pages 88-109, (2019), **Q1**.
25. I. García-Marco, K. Knauer.
Chomp on numerical semigroups,
Algebraic Combinatorics, 1(3), pages 371-394, (2018).
26. K. Knauer, L. Martínez-Sandoval, J. L. Ramírez Alfonsín.
On lattice path matroid polytopes : integer points and Ehrhart polynomial,
Discrete & Computational Geometry, 60(3), pages 698–719, (2018).
27. K. Knauer, L. P. Montejano, J. L. Ramírez Alfonsín.
How many circuits determine an oriented matroid ?,
Combinatorica 38(4), pages 861-885, (2018), **Q1**.
28. H.-J. Bandelt, V. Chepoi, K. Knauer.
COMs : Complexes of oriented matroids,
Journal of Combinatorial Theory Series A, 156, pages 195-237, (2018).
29. K. Knauer, L. Martínez-Sandoval, J. L. Ramírez Alfonsín.
A Tutte polynomial inequality for lattice path matroids,
Advances in Applied Mathematics, 94, pages 23-38, (2018).
30. R. Desgranges, K. Knauer.
A correction of a characterization of planar partial cubes,
Discrete Mathematics, 340(6), pages 1151-1153, (2017).
31. K. Knauer, P. Valicov, P. S. Wenger.
Planar digraphs without large acyclic sets,
Journal of Graph Theory 85(1), pages 288-291, (2017).
32. B. Albar, D. Gonçalves, K. Knauer.
Orienting triangulations,
Journal of Graph Theory 83(4), pages 392-405, (2016).
33. I. García-Marco, K. Knauer,
Drawing graphs with vertices and edges in convex position,
Computational Geometry : Theory and Applications, pages 25-33, (2017).
most downloaded paper of CGTA in 2017.
34. S. Felsner, G. Mertzios, K. Knauer, T. Ueckerdt,
Intersection graphs of L-shapes and segments in the plane,
Discrete Applied Mathematics 206, pages 48-55, (2016).

35. M. Albenque, K. Knauer.
Convexity in partial cubes : the hull number,
Discrete Mathematics 339, pages 866-876, (2016).
36. K. Knauer, T. Ueckerdt.
Three ways to cover a graph,
Discrete Mathematics 339, pages 745-758, (2016) .
37. J. Chappelon, K. Knauer, L. P. Montejano, J. L. Ramírez Alfonsín.
Connected covering numbers,
Journal of Combinatorial Designs 23 (12), pages 534-549, (2015).
38. K. Knauer, U. Knauer.
On planar right groups,
Semigroup Forum 92 (1), pages 142-157, (2016).
39. B. Bosek, S. Felsner, K. Knauer, G. Matecki.
On the duality of semiantichains and unichain coverings,
Order 33 (1), pages 29-38, (2016).
40. L. Luecken, J. P. Pade, K. Knauer.
Classification of coupled dynamical systems with multiple delays : Finding the minimal number of delays,
SIAM Journal of Applied Dynamical Systems 14 (1), pages 286-304, (2015), **Q1**.
41. D. Heldt, K. Knauer, T. Ueckerdt.
On the bend-number of planar and outerplanar graphs,
Discrete Applied Mathematics 179, pages 109-119, (2014).
42. J. Cardinal, K. Knauer, P. Micek, T. Ueckerdt.
Making Octants Colorful, and Related Covering Decomposition Problems,
SIAM Journal of Discrete Mathematics 28 (4), pages 1948-1959, (2014).
43. M. Axenovich, K. Knauer, J. Stump, T. Ueckerdt.
Online and size anti-Ramsey numbers,
Journal of Combinatorics 5 (1), pages 87-114, (2014).
44. K. Knauer, P. Micek, B. Walczak.
Outerplanar graph drawings with few slopes,
Computational Geometry : Theory and Applications 47 (5), pages 614-624, (2014).
45. D. Heldt, K. Knauer, T. Ueckerdt.
Edge-intersection graphs of grid paths : the bend-number,
Discrete Applied Mathematics 167, pages 144-162, (2014).
46. K. Knauer, J. J. Montellano-Ballesteros, R. Strausz.
A graph-theoretical axiomatization of oriented matroids,
European Journal of Combinatorics 35, pages 388-391, (2014).
47. J. Cardinal, K. Knauer, P. Micek, T. Ueckerdt.
Making triangles colorful,
Journal of Computational Geometry 4 (1), pages 240-246, (2013).
48. L. Lücken, J. P. Pade, K. Knauer, S. Yanchuk.
Reduction of interaction delays in networks,
Europhysics Letters 103, 6 pages, (2013).

49. S. Felsner, K. Knauer.
Distributive lattices, polyhedra, and generalized flows,
European Journal of Combinatorics 32, pages 45-59, (2011).
50. S. Felsner, R. Gómez, K. Knauer, J. J. Montellano-Ballesteros, R. Strausz.
Cubic time recognition of cocircuit graphs of uniform oriented matroids,
European Journal of Combinatorics 32, pages 60-66, (2011).
51. K. Knauer, P. Micek, T. Ueckerdt.
How to eat $4/9$ of a pizza,
Discrete Mathematics 311, pages 1635-1645, (2011)
most downloaded paper of DM in 2011.
52. K. Knauer, U. Knauer.
Toroidal embeddings of right-groups,
Thai Journal of Mathematics 8, pages 483-490, (2010).
53. S. Felsner, K. Knauer.
ULD-lattices and Δ -bonds,
Combinatorics, Probability and Computing 18, pages 707-724, (2009).

Conferences

1. E. Delucchi, K. Knauer.
Finitary affine oriented matroids,
Sémin. Lothar. Comb. 85B, Article 48, 12 p. (2021).
2. P. Aboulker, F. Havet, K. Knauer, C. Rambaud.
On the dichromatic number of surfaces,
accepted at EuroComb 2021.
3. S. Felsner, K. Knauer, T. Ueckerdt.
Plattenbauten : touching rectangles in space,
accepted at WG2020.
4. O. Aichholzer, J. Cardinal, T. Huynh, K. Knauer, T. Mütze, R. Steiner, B. Vogtenhuber.
Flip distances between graph orientations,
WG 2019, Graph-Theoretic Concepts in Computer Science, pages 120-134, (2019).
5. K. Knauer, P. Micek, T. Ueckerdt.
The queue-number of posets of bounded width or height,
GD 2018, Lecture Notes in Computer Science 11282, 200-212 (2018).
6. K. Knauer, B. Walczak.
Graph Drawings with One Bend and Few Slopes,
LATIN 2016, Lecture Notes in Computer Science 9644, pages 549-561, (2016).
7. I. García-Marco, K. Knauer.
Drawing graphs with vertices and edges in convex position,
GD 2015, Lecture Notes in Computer Science 9411, pages 348-359, (2015).
8. B. Albar, D. Gonçalves, K. Knauer.
Orienting triangulations,
EuroCG Ljubljana, 4 pages, (2015).
9. S. Felsner, G. Mertzios, K. Knauer, T. Ueckerdt,
Intersection graphs of L-shapes and segments in the plane,
MFCS 2014, Lecture Notes in Computer Science 8635, pages 299-310, (2014).

10. M. Albenque, K. Knauer.
Convexity in partial cubes : the hull number,
LATIN 2014, Lecture Notes in Computer Science 8392, pages 421-432, (2014).
11. J. Cardinal, K. Knauer, P. Micek, T. Ueckerdt.
Making octants colorful, and related covering decomposition problems,
SODA 2014, Proceedings of SODA 2014, pages 1424-1432, (2014).
12. A. Asinowski, J. Cardinal, N. Cohen, S. Collette, T. Hackl, M. Hoffmann, K. Knauer, S. Langermann, M. Lasoń, P. Micek, G. Rote, T. Ueckerdt.
Coloring hypergraphs induced by dynamic point sets and bottomless rectangles,
WADS 2013, Lecture Notes in Computer Science 8037, pages 73-84, (2013).
13. K. Knauer, T. Ueckerdt.
Simple treewidth,
Midsummer Combinatorial Workshop Prague, 3 pages, (2012).
14. K. Knauer, P. Micek, B. Walczak.
Outerplanar graph drawings with few slopes,
COCOON 2012, Lecture Notes in Computer Science 7434, pages 323-334, (2012).
15. K. Knauer, P. Micek, B. Walczak.
Outerplanar graph drawings with few slopes,
EuroCG Assisi, 4 pages, (2012).
16. B. Bosek, S. Felsner, K. Knauer, G. Matecki.
News about semiantichains and unichain coverings,
CSR 2012, Lecture Notes in Computer Science 7353, pages 43-51, (2012).
17. D. Heldt, K. Knauer, T. Ueckerdt.
On the bend-number of planar and outerplanar graphs,
LATIN 2012, Lecture Notes in Computer Science 7256, pages 458-469, (2012).
18. K. Knauer, J. J. Montellano-Ballesteros, R. Strausz.
A graph-theoretical axiomatization of oriented matroids,
EuroComb 2011, Electronic Notes in Discrete Mathematics 38, pages 523-528, (2011).
19. R. Gómez, K. Knauer, J. J. Montellano-Ballesteros, R. Strausz.
Polynomial time recognition of uniform cocircuit graphs,
LAGOS'09, Electronic Notes in Discrete Mathematics 35, pages 29-34, (2009).
20. K. Knauer.
Chip-firing, antimatroids and polyhedra,
EuroComb 2009, Electronic Notes in Discrete Mathematics 34, pages 9-13, (2009).
21. S. Felsner, K. Knauer.
Distributive lattices from graphs,
Sixth Conference on Discrete Mathematics and Computer Science, Lleida, pages 11-23, (2008).
22. K. Knauer.
Distributive lattices on graph orientations,
Semigroups, acts and categories with applications to graphs, Tartu, pages 79-91, (2007).

Submissions

1. S. Felsner, K. Knauer, T. Ueckerdt.
Plattenbauten : touching rectangles in space,
September 2023, 31 pages, submitted to SIAM Journal of Discrete Mathematics.

2. A. Jiménez, K. Knauer, C. N. Lintzmayer, M. Matamala, J. P. Peña, D. A. Quiroz, M. Sambinelli, Y. Wakabayashi, W. Yu, and J. Zamora.
Boundedness for proper conflict-free and odd colorings,
August 2023, 23 pages, submitted to Electronic Journal of Combinatorics.
3. R. Hernández-Ortiz, K. Knauer, L. P. Montejano.
On k -neighborly reorientations of oriented matroids,
June 2023, 22 pages, submitted to European Journal of Combinatorics.
4. R. Hernández-Ortiz, K. Knauer, L. P. Montejano, M. Scheucher.
Roudneff's Conjecture in Dimension 4,
March 2023, 6 pages, submitted to Experimental Mathematics.
5. C. Benedetti-Velásquez, K. Knauer, J. Valencia.
On lattice path matroid polytopes : alcoved triangulations and snake decompositions,
March 2023, 26 pages, submitted to Discrete and Computational Geometry.
6. K. Knauer, William T. Trotter.
Concepts of Dimension for Convex Geometries,
March 2023, 21 pages, submitted to SIAM Journal of Discrete Mathematics.
7. E. Delucchi, K. Knauer.
Finitary affine oriented matroids,
December 2022, 44 pages, submitted to Discrete and Computational Geometry.
8. W. Hochstättler, S. Keip, K. Knauer.
The signed Varchenko Determinant for Complexes of Oriented Matroids,
November 2022, 19 pages, submitted to Algebraic Combinatorics.
9. K. Knauer, G. Puig i Surroca.
On endomorphism universality of sparse graph classes,
September 2022, 37 pages, submitted to Journal of the European Mathematic Society.
10. C. Benedetti-Velásquez, K. Knauer.
Lattice path matroid and quotients,
February 2022, 26 pages, submitted to Combinatorica.
11. V. Chepoi, K. Knauer, M. Philibert.
Labeled sample compression schemes for complexes of oriented matroids,
October 2021, 12 pages, submitted to Journal of Computer and System Sciences.

Theses

K. Knauer

Oriented matroids and beyond: complexes, partial cubes, and corners,
Habilitation Thesis, 215 pages, (2021).

K. Knauer

Lattices and polyhedra from graphs,
PhD Thesis, 131 pages, (2010).

K. Knauer

Partial orders on orientations via cycle flips,
Diploma Thesis, 85 pages, (2007).