

# Extended Curriculum Vitae

Florian Rabe

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## 1 General Information

### 1.1 Personal

Name PD<sup>1</sup> Dr. habil. FLORIAN RABE  
Born 28.09.1979, Wolfsburg, Germany  
Nationality German  
Affiliation University Paris-Sud, LRI (Computer Science), France  
University Erlangen-Nürnberg, Computer Science, Germany

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<sup>1</sup>PD abbreviates “Privatdozent”, a German title that entails the right to teach independently and supervise Ph.D.

## 1.2 Academic Education and Employment

2019–	Privatdozent, University Erlangen-Nürnberg, Germany
2019–	Consultant for Amazon Web Services (1 day/week)
2018–2019	Senior researcher, University Paris-Sud, France
2017–	Senior researcher, University Erlangen-Nürnberg, Germany
2017	Substitute professor (Professorenvertretung), Jacobs University, Bremen, Germany
2015–2018	Privatdozent and faculty member, Jacobs University
2014–2017	Self-acquired third-party funded position (DFG Eigene Stelle): Jacobs University
2008–2014	Habilitation (venia legendi), Computer Science, Jacobs University Thesis: “A Scalable Logical Framework”, Talk: “Process Calculi”
2005–2008	Ph.D. with distinction, Computer Science, Jacobs University
2000–2004	M.Sc. with distinction, Computer Science, University of Karlsruhe, Germany
1999	Abitur, 1.0 (best possible GPA)

## 1.3 Major Invited Research Visits

Feb 2020	Hausdorff Center for Mathematics, Bonn, Germany Workshop on Mathematical Language and Practical Type Theory
May 2019	International Center for Mathematical Sciences, Edinburgh, UK Workshop on Big Proof
Aug 2018	McMaster University, Hamilton, Ontario, Canada invited by Prof. Dr. William Farmer
Dec 2017	LRI, Paris, France Invited by Prof. Dr. Nicolas Thiéry
Nov 2017	WIAS, Berlin, Germany Invited by Dr. Thomas Koprucki
Sep 2016	ENSIIE, Paris, France Invited by Prof. Dr. Catherine Dubois and Prof. Dr. Renaud Rioboo
Jan 2016	University of Innsbruck, Austria Invited by Dr. Cezary Kaliszyk
March+April 2015	SRI International, Menlo Park, California, US (1 month) Collaboration with Dr. Natarajan Shankar and Kestrel Institute, Palo Alto, California, US (1 month) Collaboration with Dr. Stephen Westfold
Sep 2014	Chalmers University of Technology, Gothenburg, Sweden Invited by Dr. Cezar Ionescu
Feb 2014	University of Innsbruck, Austria Invited by Dr. Cezary Kaliszyk
June 2013	University of Zürich, Switzerland Invited by Prof. Dr. Paul-Olivier Dehaye
Jan 2011	McMaster University, Hamilton, Ontario, Canada Collaboration with Prof. Dr. William M. Farmer and Prof. Dr. Jacques Carrette
June 2010	IT University of Copenhagen, Denmark Invited by Prof. Dr. Carsten Schürmann
Jan 2009	IT University of Copenhagen, Denmark Invited by Prof. Dr. Carsten Schürmann
Jan-Dec 2006	Carnegie Mellon University, Pittsburgh, USA Invited by Prof. Dr. Frank Pfenning

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students at a German university.

## 1.4 Awards and Scholarships

2019	Winner “Best paper award”, Conference on Intelligent Computer Mathematics
2015	Winner of the Contest “The Future of Logic” at the Universal Logic Congress (500 €)
2010	Winner “Best paper award”, Conference on Mathematical Knowledge Management
2007–2008	Full scholarship by German Merit Foundation (17 months)
2006	Winner “Modal Logic \$100 challenge”
2006	Full scholarship by German Academic Exchange Service (12 months) (for research stay at Carnegie Mellon University, Pittsburgh, USA)
2005	Full scholarship by Jacobs University Germany (8 months)
2005–2014	~ 10 individual travel grants to conferences
2005	Award by Förderverein of the Research Center Computer Science (500 €) Best Diploma thesis

## 2 Academic Activities

### 2.1 Funded Research Projects

#### Completed or Ongoing

**LATIN:** Logic Atlas & Integrator

2009–2012, 2 positions, funded by German Research Foundation (DFG)

de facto principal investigator, with Prof. M. Kohlhase, Prof. T. Mossakowski

<http://uniformal.github.io/doc/applications/LATIN/>

**OAF:** Open Archive of Formal Knowledge

2014–2020, 2 positions, funded by German Research Foundation (DFG)

principal investigator, with Prof. M. Kohlhase

<https://kwarc.info/projects/oaf>

**OpenDreamKit:** Open Digital Research Environment Toolkit for the Advancement of Mathematics

2015–2019, 7,630,000 € funded, by EU Horizon 2020, RIA

principal investigator, part of consortium of 15 sites

<http://opendreamkit.org/>

#### Under Review

**ILF:** An Intuitive Language for Formalization

3 years, 4 positions, German/Austrian proposal to DFG and FWF

principal investigator, with Cezary Kaliszyk

### 2.2 Teaching

Since receiving my PhD in 2008, I have taught independently. I have taught the following courses:

Semester	Type	ECTS	Title
at Jacobs University			
Fall 2008	undergraduate course	5	Formal Languages and Logic
Spring 2009	graduate seminar+project	5+10	Semantic Web and Knowledge Representation

Fall 2009	graduate course+lab	5+5	Computational Logic
Fall 2009	reading course	5	Universal Algebra
Spring 2010	graduate seminar+project	5+10	Semantic Web and Knowledge Representation
Spring 2010	reading course	10	Type Theory
Fall 2010	graduate course+lab	5+5	Computational Semantics of Natural Language
Spring 2011	graduate seminar+project	5+10	Semantic Web and Knowledge Representation
Fall 2011	graduate course+lab	5+5	Computational Logic
Spring 2012	graduate seminar+project	5+10	Semantic Web and Knowledge Representation
Fall 2012	undergraduate lab	2.5	Programming in Python
Fall 2012	undergraduate lab	2×2.5	Programming in C
Spring 2013	undergraduate lab	2.5	Programming in Python 2
Fall 2013	reading course	2.5	Programming in Python 2
Fall 2013	undergraduate course	5	Formal Languages and Logic
Fall 2013	graduate lab+project	5+10	Computational Logic
Fall 2014	graduate lab+project	5+10	Computational Logic
Spring 2016	undergraduate lab	2×2.5	Advanced Programming in Python
Spring 2017	undergraduate course	5	Algorithms and Data Structures
Spring 2017	undergraduate course	5	Secure and Dependable Systems
Spring 2017	undergraduate lab	2×2.5	Advanced Programming in Python

at University Erlangen-Nuremberg

Winter 2019/20	seminar	5	Knowledge Representation and Processing
Summer 2020	seminar	5	Knowledge Representation and Processing
Summer 2020	course	5	Logic-based knowledge representation for mathematical/technical knowledge
Summer 2020	course+lab	7.5	Knowledge Representation and Processing

## 2.3 Advising of Students

After obtaining my Ph.D. degree in 2008 I have supervised students independently or in collaboration with Prof. Michael Kohlhase. By now all members of Prof. Kohlhase's research group work with my MMT language and system in one way or another so that I co-supervise all of them to varying degree. The following list includes only those students where supervision is/was primarily carried out by me.

I also maintain an extensive list of valuable advice for students, which is available at [https://github.com/florian-rabe/Teaching/blob/master/general/advice\\_for\\_students.pdf](https://github.com/florian-rabe/Teaching/blob/master/general/advice_for_students.pdf).

### B.Sc. students

2007–2008	Elena Agapie	CS	went on to Harvard University
2007–2008	Kristina Sojakova	Math	
2008–2009	Jana Gičeva	CS	went on to ETH Zürich
2008–2009	Alin Iacob	Math, CS	
2009–2010	Catalin David	CS	
2008–2010	Ștefania Dumbravă	Math	
2009–2010	Mihnea Iancu	CS	
2010–2011	Vladimir Zamdzhiev	Math, CS	went on to University of Oxford

2010–2012	Iulia Ignatov	CS	went on to ETH Zürich
2011–2012	Maria-Alexandra Alecu	CS	went on to University of Edinburgh
2012–2013	Felix Mance	CS	went on to ETH Zürich
2013–2014	Timo Lücke	Math	
2014–2015	Roxana Nadrag	CS	went on to industry
2016–2017	Shabbar Razaa	CS	went on to industry
2017–2018	Colin Rothgang	Math	went on to Berlin Mathematical School
2018–2019	Navid Roux	CS	
2020–2021	Christian Cerny	CS	

#### M.Sc. students

2008–2010	Kristina Sojakova	CS	went on to Carnegie Mellon University
2009–2011	Alin Iacob	CS	went on to industry
2009–2012	Füsün Horozal	CS	went on to industry
2010–2012	Ştefania Dumbravă	CS	went on to INRIA Saclay
2010–2012	Mihnea Iancu	CS	went on to industry
2015–2017	Tom Wiesing*	CS	
2016–2018	Jonas Betzendahl*	CS	
2018–2021	Sven Wille	CS	
2019–2021	Navid Roux	CS	

#### Ph.D. students

2012–2017	Mihnea Iancu**	CS	went on to industry
2015–2019	Dennis Müller**	CS	
2018–	Jonas Betzendahl*	CS	

#### Post-docs

2015–2016	Christian Maeder*		
2018–2020	Katja Bercic*		

\* co-supervised or otherwise mentored

\*\* member of the thesis committee.

## 3 Academic Service

### 3.1 Academic Self-Governance

*at University of Karlsruhe, Department of Computer Science*

2001 – 2004	Elected member of student council and appointed member of study committee
2003	Member of professor hiring committee

*at Jacobs University Bremen*

2008 – 2010	Elected member of staff council
2010 – 2012	Member of provost search committee
2011 – 2012	Member of constitution committee

*at University Erlangen-Nuremberg, Technical Faculty*

2020	Member of professor hiring committee
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*in international organizations*

2010 – 2013	Board of trustees, Mathematical Knowledge Management
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- <http://www.mkm-ig.org/>
- 2012 – 2015 Steering Committee, Intelligent Computer Mathematics  
<http://www.cicm-conference.org/>
- 2015 – Member, IFIP Working Group 2.1 on Algorithmic Languages and Calculi  
(observer until 2017)  
<http://foswiki.cs.uu.nl/foswiki/IFIP21/>
- 2016 – Secretary/Treasurer, OpenMath Society  
<http://www.openmath.org/society/index.html>
- 2017 – 2019 Steering Committee, Intelligent Computer Mathematics  
<http://www.cicm-conference.org/>
- 2017 – 2022 Steering Committee (2018–2022: chair), Logical Frameworks and Meta Languages  
<http://lfmtp.org/>
- 2019 – 2023 Advisory Board, EU project Tipping Points in Earth Systems  
<https://www.tipes.dk>

## 3.2 Organization of Meetings

### *Conferences and Similar Meetings*

- 2011 Conference on Intelligent Computer Mathematics (CICM 2011)  
member of organization committee
- 2015 Conference on Intelligent Computer Mathematics (CICM 2015)  
member of organization committee
- 2016 Dagstuhl Seminar on Universality of Proofs  
co-organizer
- 2017 Conference on Intelligent Computer Mathematics (CICM 2017)  
member of organization committee
- 2018 Conference on Intelligent Computer Mathematics (CICM 2018)  
member of organization committee (as PC chair)

### *Workshops, Tutorials, Schools, and similar meetings*

- 2009 Workshop on Module Systems and Libraries for Proof Assistants (MLPA 2009)  
at CADE 2009, with Carsten Schürmann
- 2010 Workshop on Module Systems and Libraries for Proof Assistants (MLPA 2010)  
at FLoC 2010, with Carsten Schürmann
- 2011 Workshop on Module Systems and Libraries for Proof Assistants (MLPA 2011)  
at ITP 2011, with Carsten Schürmann
- 2012 Second St. Jacobs Workshop  
stand-alone
- 2013 Workshop on Programming Languages for Mechanized Mathematics Systems  
at CICM 2013, with Iain Whiteside
- 2016 MMT Tutorial  
at CICM 2016, main organizer
- 2016 Tetrapod Workshop  
at CICM 2016, co-organizer
- 2017 Workshop on Logical Frameworks and Meta Languages: Theory and Practice  
at FSCD 2017, with Marino Miculan
- 2018 Workshop on Modular Knowledge  
at FLoC 2018, with Jacques Carette, Dennis Müller
- 2018 MMT Tutorial  
at World Congress on Universal Logic, main organizer

- 2018 Session on Composable Mathematical Software  
at ICMS 2018, with Markus Pfeiffer, Nicolas Thiery,
- 2019 Summer School on Formalizing the Zoo of Logical Systems  
at ESSLLI 2019, with Michael Kohlhase
- 2020 German Society for CS (GI), joint annual meeting of groups on Logic in Computer Science  
and Deduction Systems  
with Sergey Goncharov
- 2020 Workshop on Natural Formal Mathematics  
at CICM 2020, with Peter Koepke

### 3.3 Peer Review

#### Membership in Program Committees

##### *Journal issues*

- 2009 member special issue of AI Communications for PAAR 2008

##### *Conferences*

- 2010 member Mathematical Knowledge Management (MKM)
- 2010 member Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing (SNPD)
- 2011 track chair Mathematical Knowledge Management (MKM)
- 2012 member Intelligent Computer Mathematics (CICM)
- 2013 member Intelligent Computer Mathematics (CICM)
- 2014 member Mathematical Knowledge Management (MKM)
- 2014 member Calculemus
- 2015 track chair Systems & Data track at the Conference on Intelligent Computer Mathematics (S&D at CICM)
- 2016 member Intelligent Computer Mathematics (CICM)
- 2016 member Algebraic Development Techniques (WADT, post-proceedings)
- 2017 track chair Mathematical Knowledge Management (MKM)
- 2018 chair Intelligent Computer Mathematics (CICM)
- 2018 member Mathematical Software (ICMS)
- 2019 member Intelligent Computer Mathematics (CICM)
- 2020 member Asian Symposium on Programming Languages and Systems (APLAS)
- 2020 member Intelligent Computer Mathematics (CICM)

##### *Workshops*

- 2008 member Practical Aspects of Automated Reasoning (PAAR at IJCAR 2008)
- 2009 co-chair Module Systems and Libraries for Proof Assistants (MLPA at CADE 2009)
- 2009 member TPTP World Workshop (TPTPWöWo at CADE 2009), eventually cancelled
- 2010 co-chair Module Systems and Libraries for Proof Assistants (MLPA at FLoC 2010)
- 2010 member International Workshop on Implementations of Logics (IWIL at LPAR 2010)
- 2011 co-chair Module Systems and Libraries for Proof Assistants (MLPA, part of LFMTTP/MLPA at ITP 2011)
- 2013 member Proof Exchange for Theorem Proving (PxTP at CADE 2013)
- 2013 member ACM SIGPLAN Workshop on Generic Programming (WGP at ICFP 2013)
- 2013 member Logical Frameworks and Meta-Languages: Theory and Practice (LFMTTP at ICFP 2013)
- 2013 co-chair Programming Languages for Mechanized Mathematics Systems (PLMMS at CICM 2013)

2015	member	Deduktionstreffen (German Deduction Meeting, at CADE 2015)
2016	member	Deduktionstreffen (German Deduction Meeting, at KI 2016)
2017	co-chair	Logical Frameworks and Meta-Languages: Theory and Practice (LFMTP at FSCD 2017)
2017	member	Deduktionstreffen (German Deduction Meeting, at KI 2017)
2017	member	Proof Exchange for Theorem Provers (PxTP at FroCos/ITP/Tableaux 2017)
2018	member	Deduktionstreffen (German Deduction Meeting)
2018	panel member	CADE ATP System Competition (CASC at FLoC 2018)
2018	member	Mathematical Models and Mathematical Software as Research Data (M3SRD at CICM 2018)
2018	co-chair	Workshop on Modular Knowledge (Tetrapod at FLoC 2018)
2018	co-chair	Composable Mathematical Software (at ICMS 2018)
2019	member	Logical Frameworks and Meta-Languages: Theory and Practice (LFMTP at LICS 2019)
2019	member	Formal Verification of Physical Systems (FVPS at CICM 2019)
2019	member	Large Mathematical Libraries (LML at CICM 2019)
2019	member	Proof Exchange for Theorem Provers (PxTP at CADE 2019)
2019	member	Logical and Semantic Frameworks, with Applications (LSFA at CADE 2019)
2019	member	Deduktionstreffen (German Deduction Meeting)
2020	co-chair	Natural Formal Mathematics (NFM at CICM 2020)

### Individual Reviews

*Journals:* Axioms, Formal Aspects of Computing, Fuzzy Sets and Systems, Information and Computation, Journal of Automated Reasoning, Journal of Formalized Reasoning, Journal of Logic and Computation, Logic and Logical Philosophy, Logica Universalis, Logical Methods in Computer Science, Mathematical Structures in Computer Science, Mathematics in Computer Science, Theoretical Computer Science

*Conferences:* CADE, FroCoS, IJCAR, ISSAC, LICS, LPAR, MKM, TPHOLs, Types, WADT

*Review aggregators:* Bulletin of Symbolic Logic, AMS Mathematical Reviews

*Grant Proposals:*

2017	Estonian Research Council	2 proposals, about 1 million € each
2017	Vienna Science and Technology Fund	1 proposal, about 1 million €
2018	Czech Science Foundation	1 proposal for $2 \times 3$ person-years
2020	FNR Luxembourg	1 proposal, about 1 million €

### 3.4 Invited Talks

Year	Inviter/Venue
2014	Chalmers University, functional programming division
2015	SRI International, Menlo Park
2015	Kestrel Institute, Palo Alto
2015	Inria, Parsifal team
2015	Inria, FoCaLiZe team



- 2015 Annual Meeting of German Mathematicians: Mathematics on the Web and Mathematical Knowledge Management
- 2016 ENSIIS/ENS Cachan, Paris
- 2016 University Paris-Sud, VALS team
- 2018 University Paris-Sud, GALAC team
- 2018 Inria, Parsifal team
- 2019 Hong Kong University, programming languages group
- 2019 Heriot-Watt University, ULTRA group
- 2019 University of Ljubljana, Institute of Mathematics, Physics, and Mechanics
- 2019 Congress of Romanian Mathematicians: Mathematical Structures in Formal System Development and Analysis (unable to attend)
- 2019 International Centre for Mathematical Science, Edinburgh: Big Proof workshop (invited participant)
- 2020 Hausdorff Center for Mathematics, Bonn: Mathematical Language and Practical Type Theory
- 2020 Every Proof Assistant Seminar, Andrej Bauer

## 4 Major Software Projects

I have taken great care to couple all my theoretical research with the corresponding practical software development. I am the main developer of the following open-source software systems, which are the major practical outcome of my work.

- MMT, written in Scala, 100,000 lines of code, lead developer among 20 contributors  
<https://uniformal.github.io>  
 This is the reference implementation of the MMT language for the scalable representation and management of formal knowledge. It includes fully integrated implementations of knowledge management services and connections to external systems.
- Twelf module system, written in SML, ~ 500 source files  
<http://twelf.org>  
 This is an extension of the Twelf logical framework with a module system and namespace management. The implementation substantially changed the main data structures and thus affected almost every source file.
- LATIN logic atlas, written in modular Twelf, > 1000 modules  
<https://uniformal.github.io/doc/archives/LATIN/index>  
 This is a library of formalizations of logics, type theories, and related formal languages, including their semantics and interrelations. It takes the style of an inventory of formal systems in use in computer science and is the main library MMT works with.
- MathHub library (with Prof. Kohlhase)  
 This ongoing project applies MMT to obtain a generic management and integration platform for formal libraries. It includes representations of dozens of systems libraries from logic and mathematics using MMT as a standardized representation format.

## 5 Publications

All research papers are openly accessible from my homepage at <https://kwarc.info/frabe/Research/pubscv.html>.

The order of authors is usually *alphabetical* in my field even if the relative contributions vary. When justifiable by their contribution and as a part of their education, I usually suggest students to be first authors of papers written with me.

Co-authors who were students advised by me are underlined.

Google Scholar metrics ([https://scholar.google.com/citations?user=L6o\\_hKAAAAAJ](https://scholar.google.com/citations?user=L6o_hKAAAAAJ)):

document count	168
citation count	1441
h-index	21
i10-index	45

Scopus metrics (<https://www.scopus.com/authid/detail.uri?authorId=25121805000>):

document count	77
citation count	505
h-index	13

## 5.1 Articles in Journals

- [1] K. Berčič, M. Kohlhase, and F. Rabe. (Deep) FAIR Mathematics. *it - Information Technology*, 62(1):7–17, 2020.
- [2] J. Carette, W. Farmer, M. Kohlhase, and F. Rabe. Big Math and the One-Brain Barrier. *The Mathematical Intelligencer*, 2020. to appear.
- [3] T. Koprucki, M. Kohlhase, K. Tabelow, D. Müller, and F. Rabe. Model pathway diagrams for the representation of mathematical models. *Optical and Quantum Electronics*, 50(70), 2018.
- [4] F. Rabe. A Modular Type Reconstruction Algorithm. *ACM Transactions on Computational Logic*, 19(4):1–43, 2018.
- [5] G. Dowek, C. Dubois, B. Pientka, and F. Rabe. Universality of Proofs (Dagstuhl Seminar 16421). *Dagstuhl Reports by Schloss Dagstuhl–Leibniz-Zentrum fuer Informatik*, 6(10):75–98, 2017. see <http://drops.dagstuhl.de/opus/volltexte/2017/6951/>.
- [6] F. Rabe. How to Identify, Translate, and Combine Logics? *Journal of Logic and Computation*, 27(6):1753–1798, 2017.
- [7] F. Rabe. Morphism Axioms. *Theoretical Computer Science*, 691:55–80, 2017.
- [8] M. Kohlhase and F. Rabe. QED Reloaded: Towards a Pluralistic Formal Library of Mathematical Knowledge. *Journal of Formalized Reasoning*, 9(1):201–234, 2016.
- [9] F. Rabe. Lax Theory Morphisms. *ACM Transactions on Computational Logic*, 17(1), 2015.
- [10] F. Rabe. The Future of Logic: Foundation-Independence. *Logica Universalis*, 10(1):1–20, 2015. 10.1007/s11787-015-0132-x; Winner of the Contest “The Future of Logic” at the World Congress on Universal Logic.
- [11] F. Rabe. A Logical Framework Combining Model and Proof Theory. *Mathematical Structures in Computer Science*, 23(5):945–1001, 2013.
- [12] F. Rabe and M. Kohlhase. A Scalable Module System. *Information and Computation*, 230(1):1–54, 2013.
- [13] F. Rabe and K. Sojakova. Logical Relations for a Logical Framework. *ACM Transactions on Computational Logic*, 14(4):1–34, 2013.

- [14] [M. Iancu](#), M. Kohlhase, F. Rabe, and J. Urban. The Mizar Mathematical Library in OMDoc: Translation and Applications. *Journal of Automated Reasoning*, 50(2):191–202, 2013.
- [15] M. Kohlhase and F. Rabe. Semantics of OpenMath and MathML3. *Mathematics in Computer Science*, 6(3):235–260, 2012.
- [16] S. Awodey and F. Rabe. Kripke Semantics for Martin-Löf’s Extensional Type Theory. *Logical Methods in Computer Science*, 7(3), 2011.
- [17] [F. Horozal](#) and F. Rabe. Representing Model Theory in a Type-Theoretical Logical Framework. *Theoretical Computer Science*, 412(37):4919–4945, 2011.
- [18] [M. Iancu](#) and F. Rabe. Formalizing Foundations of Mathematics. *Mathematical Structures in Computer Science*, 21(4):883–911, 2011.
- [19] J. Goguen, T. Mossakowski, V. de Paiva, F. Rabe, and L. Schröder. An Institutional View on Categorical Logic. *International Journal of Software and Informatics*, 1(1):129–152, 2007.
- [20] F. Rabe, P. Pudlák, G. Sutcliffe, and W. Shen. Solving the \$100 Modal Logic Challenge. *Journal of Applied Logic*, 7(1):113–130, 2007.

## 5.2 Refereed Articles in Major Collections

- [1] K. Berčić, M. Kohlhase, and F. Rabe. Towards a Heterogeneous Query Language for Mathematical Knowledge. In C. Benz Müller and B. Miller, editors, *Intelligent Computer Mathematics*, Lecture Notes in Computer Science. Springer, 2020.
- [2] M. Kohlhase, F. Rabe, C. Sacerdoti Coen, and J. Schaefer. Logic-Independent Proof Search in Logical Frameworks (short paper). In N. Peltier and V. Sofronie-Stokkermans, editors, *Automated Reasoning*, Lecture Notes in Computer Science. Springer, 2020.
- [3] R. Marcus, M. Kohlhase, and F. Rabe. 3-Dimensional Graph Visualization of Mathematical Knowledge. In C. Benz Müller and B. Miller, editors, *Intelligent Computer Mathematics*, Lecture Notes in Computer Science. Springer, 2020.
- [4] F. Rabe and C. Kaliszyk. A Survey of Languages for Formalizing Mathematics. In C. Benz Müller and B. Miller, editors, *Intelligent Computer Mathematics*, Lecture Notes in Computer Science. Springer, 2020.
- [5] [D. Müller](#), [C. Rothgang](#), F. Rabe, and M. Kohlhase. Representing Structural Language Features in Formal Meta-Languages. In C. Benz Müller and B. Miller, editors, *Intelligent Computer Mathematics*, Lecture Notes in Computer Science. Springer, 2020.
- [6] K. Amann, M. Kohlhase, F. Rabe, and T. Wiesing. Integrating Semantic Mathematical Documents and Dynamic Notebooks. In C. Kaliszyk, E. Brady, A. Kohlhase, and C. Sacerdoti Coen, editors, *Intelligent Computer Mathematics*, volume 11617 of *Lecture Notes in Computer Science*, pages 275–290. Springer, 2019.
- [7] K. Berčić, M. Kohlhase, and F. Rabe. Towards a Unified Mathematical Data Infrastructure: Database and Interface Generation. In C. Kaliszyk, E. Brady, A. Kohlhase, and C. Sacerdoti Coen, editors, *Intelligent Computer Mathematics*, volume 11617 of *Lecture Notes in Computer Science*, pages 28–43. Springer, 2019.
- [8] R. Bird and F. Rabe. How to calculate with nondeterministic functions. In G. Hutton, editor, *Mathematics of Program Construction*, volume 11825 of *Lecture Notes in Computer Science*, pages 138–154. Springer, 2019.

- [9] A. Condoluci, M. Kohlhase, D. Müller, F. Rabe, C. Sacerdoti Coen, and M. Wenzel. Relational Data Across Mathematical Libraries. In C. Kaliszyk, E. Brady, A. Kohlhase, and C. Sacerdoti Coen, editors, *Intelligent Computer Mathematics*, volume 11617 of *Lecture Notes in Computer Science*, pages 61–76. Springer, 2019.
- [10] M. Kohlhase, F. Rabe, and M. Wenzel. Making Isabelle Content Accessible in Knowledge Representation Formats. In M. Bezem and A. Mahboubi, editors, *Types for Proofs and Programs (TYPES)*, volume 175 of *LIPICs—Leibniz International Proceedings in Informatics*. Schloss Dagstuhl—Leibniz Center for Informatics, 2019.
- [11] F. Rabe. MMTTeX: Connecting Content and Narration-Oriented Document Formats. In C. Kaliszyk, E. Brady, A. Kohlhase, and C. Sacerdoti Coen, editors, *Intelligent Computer Mathematics*, volume 11617 of *Lecture Notes in Computer Science*, pages 205–210. Springer, 2019.
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