Extended Curriculum Vitae

Florian Rabe

Contents

1 General Information

1.1 Personal

Name	PD Dr. Florian Rabe		
Born	28.09.1979, Wolfsburg, Germany		
Nationality	German		
Univ. Address	Jacobs University, Campus Ring 1, 28759 Bremen, Germany		
Phone	+49 421 200 3051	Email	f.rabe@jacobs-university.de
Fax	+49 421 200 493051	Homepage	http://kwarc.info/frabe/

1.2 Academic Education and Employment

2017–	Substitute professor (Professorenvertretung), Jacobs University, Bremen, Germany
2015–	Privatdozent and faculty member, Jacobs University, Bremen, Germany
2014–	Self-acquired third-party funded position (DFG Eigene Stelle): OAF project funded at least throughout 2017
2008–2014	Habilitation (venia legendi), Computer Science, Jacobs University, Bremen, Germany
2005–2008	Ph.D. with distinction, Computer Science, Jacobs University, Bremen, Germany
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

Sep 2016	ENSIIE, Paris, France Invited by Prof. Dr. Catherine Dubois and Prof. Dr. Renaud Rioboo
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 Carette
June 2010	IT University of Copenhagen, Denmark (1 month) Invited by Prof. Dr. Carsten Schürmann
Jan 2009	IT University of Copenhagen, Denmark (1 month) Invited by Prof. Dr. Carsten Schürmann
2006	Carnegie Mellon University, Pittsburgh, USA (12 months) Invited by Prof. Dr. Frank Pfenning

1.4 Awards and Scholarships

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	$\sim$ 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
2014–2017, 2 positions, funded by German Research Foundation (DFG)
principal investigator, with Prof. M. Kohlhase
https://svn.kwarc.info/repos/frabe/www/OAF/index.html

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/

Ready for Submission

UniProofs: A Universal Proof Checker
3 years, 4 positions, German/French parallel proposal to ANR and DFG
principal investigator, with Prof. M. Kohlhase, Prof. Gilles Dowek, Prof. Catherine Dubois, Prof. Renaud Rioboo

2.2 Teaching

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

Semester	Type	ECTS	Title
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

* given jointly with Prof. Dr. Michael Kohlhase

2.3 Advising of Students

After obtaining my Ph.D. degree in 2008 I have formed and led the *theory* subgroup within Prof. Michael Kohlhase's research group at Jacobs University. The students that have completed or are currently writing their theses with me are listed below.

I also maintain an extensive list of valuable advice for students, which is available at `https://svn.kwarc.info/repos/frabe/Teaching/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	Ştefania 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

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	Füsun Horozal	CS	went on to industry
2010–2012	Ştefania Dumbravă	CS	went on to INRIA Saclay
2010–2012	Mihnea Iancu	CS	

Ph.D. students

2012–2017	Mihnea Iancu*	CS	
2015–	Dennis Müller*	CS	

* supervised by Prof. Kohlhase, and I am a member of the dissertation committee

Additionally, the following people formally supervised by Prof. Kohlhase were deeply involved with my subgroup:

Ph.D. students

2008-2014	Fulya Horozal

Post-docs

2015-2016	Christian Maeder

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	Appointed member of professor search committee

at Jacobs University Bremen

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

in international organizations

2010 – 2013	Member of board of trustees of MKM interest group http://www.mkm-ig.org/
2012 – 2015	Member of the CICM Steering Committee http://trac.mathweb.org/CICM
2015 –	IFIP Working Group 2.1 on Algorithmic Languages and Calculi Observer, sponsored by Prof. Lambert Meertens http://foswiki.cs.uu.nl/foswiki/IFIP21/
2016 –	Secretary and Treasurer of Executive Committee of OpenMath Society http://www.openmath.org/society/index.html

3.2 Organization of Meetings

2009	Workshop	Module Systems and Libraries for Proof Assistants (MLPA 2009) at CADE 2009, with Prof. Dr. Carsten Schürmann
2010	Workshop	Module Systems and Libraries for Proof Assistants (MLPA 2010) at FLoC 2010, with Prof. Dr. Carsten Schürmann
2011	Conference	Conference on Intelligent Computer Mathematics (CICM 2011) member of organization committee
2011	Workshop	Module Systems and Libraries for Proof Assistants (MLPA 2011) at ITP 2011, with Prof. Dr. Carsten Schürmann
2012	Workshop	Second St. Jacobs Workshop stand-alone, see https://svn.mathweb.org/repos/tetrapod/www/index.html
2013	Workshop	Programming Languages for Mechanized Mathematics Systems at CICM 2013, with Iain Whiteside
2015	Conference	Conference on Intelligent Computer Mathematics (CICM 2015) member of organization committee
2016	Tutorial	MMT Tutorial, at CICM 2016 main organizer
2016	Workshop	Tetrapod Workshop, at CICM 2016 co-organizer
2016	Seminar	Dagstuhl Seminar on Universality of Proofs co-organizer
2017	Workshop	Logical Frameworks and Meta Languages: Theory and Practice at FSCD 2017, with Marino Miculan
2017	Conference	Conference on Intelligent Computer Mathematics (CICM 2017) member of organization committee

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 2010)
2011	track chair	Mathematical Knowledge Management track at the Conference on Intelligent Computer Mathematics (MKM at CICM 2011)
2012	member	Intelligent Computer Mathematics (CICM 2012)
2013	member	Intelligent Computer Mathematics (CICM 2013)
2014	member	Mathematical Knowledge Management (MKM 2014)
2014	member	Calculemus
2015	track chair	Systems & Data track at the Conference on Intelligent Computer Mathematics (S&D at CICM 2015)
2016	member	Intelligent Computer Mathematics (CICM 2016)
2016	member	Algebraic Development Techniques (WADT 2016, post-proceedings)
2017	track chair	Mathematical Knowledge Management track at the Conference on Intelligent Computer Mathematics (MKM at CICM 2017)

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 (TPTPWoWo 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 LFMTP/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 (LFMTP 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)

Individual Reviews

Journals: Axioms, Formal Aspects of Computing, Information and Computation, 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, LPAR, MKM, TPHOLs, Types, WADT

Review aggregators: Bulletin of Symbolic Logic, AMS Mathematical Reviews

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 API, 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
  https://svn.kwarc.info/repos/MMT/doc/html/index.html#twelfmod.html
  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://trac.omdoc.org/LATIN
  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.
- OAF library infrastructure
  This ongoing project applies MMT to obtain a generic management and integration platform for formal logical libraries. It includes representations of several major libraries (e.g., Mizar, HOL Light, TPTP) using MMT as a standardized representation format.
- OpenDreamKit system integration infrastructure
  This ongoing project applies MMT to connect a variety of tools (e.g., Sage, GAP) and databases (e.g., LMFDB, OEIS) from computational mathematics. It includes a central mediator for reliable knowledge exchange across foundations, formats, and platforms.

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.

Co-authors advised by me are underlined.

5.1 Articles in Journals

[1] F. Rabe. Morphism Axioms. *Theoretical Computer Science*, 2017. accepted pending minor revisions; see https://kwarc.info/people/frabe/Research/rabe_maxioms_16.pdf.

[2] M. Kohlhase and F. Rabe. QED Reloaded: Towards a Pluralistic Formal Library of Mathematical Knowledge. *Journal of Formalized Reasoning*, 9(1):201–234, 2016.

[3] F. Rabe. Lax Theory Morphisms. *ACM Transactions on Computational Logic*, 17(1), 2015.

[4] 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.

[5] F. Rabe. How to Identify, Translate, and Combine Logics? *Journal of Logic and Computation*, 2014. doi:10.1093/logcom/exu079.

[6] F. Rabe. A Logical Framework Combining Model and Proof Theory. *Mathematical Structures in Computer Science*, 23(5):945–1001, 2013.

[7] F. Rabe and M. Kohlhase. A Scalable Module System. *Information and Computation*, 230(1):1–54, 2013.

[8] F. Rabe and K. Sojakova. Logical Relations for a Logical Framework. *ACM Transactions on Computational Logic*, 14(4):1–34, 2013.

[9] 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.

[10] M. Kohlhase and F. Rabe. Semantics of OpenMath and MathML3. *Mathematics in Computer Science*, 6(3):235–260, 2012.

[11] S. Awodey and F. Rabe. Kripke Semantics for Martin-Löf's Extensional Type Theory. *Logical Methods in Computer Science*, 7(3), 2011.

[12] F. Horozal and F. Rabe. Representing Model Theory in a Type-Theoretical Logical Framework. *Theoretical Computer Science*, 412(37):4919–4945, 2011.

[13] M. Iancu and F. Rabe. Formalizing Foundations of Mathematics. *Mathematical Structures in Computer Science*, 21(4):883–911, 2011.

[14] 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.

[15] 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] M. Codescu, T. Mossakowski, and F. Rabe. Selecting Colimits for Parameterisation and Networks of Specifications. In M. Roggenbach and P. James, editors, *Recent Trends in Algebraic Development Techniques*, Lecture Notes in Computer Science. Springer, 2017. to appear.

[2] P. Dehaye, M. Iancu, M. Kohlhase, A. Konovalov, S. Lelièvre, D. Müller, M. Pfeiffer, F. Rabe, N. Thiéry, and T. Wiesing. Interoperability in the ODK Project: The Math-in-the-Middle Approach. In M. Kohlhase, L. de Moura, M. Johansson, B. Miller, and F. Tompa, editors, *Intelligent Computer Mathematics*, volume 9791 of *Lecture Notes in Computer Science*, pages 117–131. Springer, 2016.

[3] F. Rabe. Generic Literals. In M. Kerber, J. Carette, C. Kaliszyk, F. Rabe, and V. Sorge, editors, *Intelligent Computer Mathematics*, volume 9150 of *Lecture Notes in Computer Science*, pages 102–117. Springer, 2015.

[4] F. Horozal and F. Rabe. Formal Logic Definitions for Interchange Languages. In M. Kerber, J. Carette, C. Kaliszyk, F. Rabe, and V. Sorge, editors, *Intelligent Computer Mathematics*, volume 9150 of *Lecture Notes in Computer Science*, pages 171–186. Springer, 2015.

[5] C. Kaliszyk and F. Rabe. Towards Knowledge Management for HOL Light. In S. Watt, J. Davenport, A. Sexton, P. Sojka, and J. Urban, editors, *Intelligent Computer Mathematics*, volume 8543 of *Lecture Notes in Computer Science*, pages 357–372. Springer, 2014.

[6] F. Horozal, F. Rabe, and M. Kohlhase. Flexary Operators for Formalized Mathematics. In S. Watt, J. Davenport, A. Sexton, P. Sojka, and J. Urban, editors, *Intelligent Computer Mathematics*, volume 8543 of *Lecture Notes in Computer Science*, pages 312–327. Springer, 2014.

[7] M. Codescu, F. Horozal, A. Jakubauskas, T. Mossakowski, and F. Rabe. Compiling Logics. In N. Martí-Oliet and M. Palomino, editors, *Recent Trends in Algebraic Development Techniques 2012*, volume 7841 of *Lecture Notes in Computer Science*, pages 111–126. Springer, 2013.

[8] M. Kohlhase, F. Mance, and F. Rabe. A Universal Machine for Biform Theory Graphs. In J. Carette, D. Aspinall, C. Lange, P. Sojka, and W. Windsteiger, editors, *Intelligent Computer Mathematics*, volume 7961 of *Lecture Notes in Computer Science*, pages 82–97. Springer, 2013.

[9] F. Rabe. The MMT API: A Generic MKM System. In J. Carette, D. Aspinall, C. Lange, P. Sojka, and W. Windsteiger, editors, *Intelligent Computer Mathematics*, volume 7961 of *Lecture Notes in Computer Science*, pages 339–343. Springer, 2013.

[10] M. Codescu, F. Horozal, M. Kohlhase, T. Mossakowski, and F. Rabe. A Proof Theoretic Interpretation of Model Theoretic Hiding. In T. Mossakowski and H. Kreowski, editors, *Recent Trends in Algebraic Development Techniques 2010*, volume 7137 of *Lecture Notes in Computer Science*, pages 118–138. Springer, 2012.

[11] M. Codescu, F. Horozal, M. Kohlhase, T. Mossakowski, F. Rabe, and K. Sojakova. Towards Logical Frameworks in the Heterogeneous Tool Set Hets. In T. Mossakowski and H. Kreowski, editors, *Recent Trends in Algebraic Development Techniques 2010*, volume 7137 of *Lecture Notes in Computer Science*, pages 139–159. Springer, 2012.

[12] F. Rabe. A Query Language for Formal Mathematical Libraries. In J. Campbell, J. Carette, G. Dos Reis, J. Jeuring, P. Sojka, V. Sorge, and M. Wenzel, editors, *Intelligent Computer Mathematics*, volume 7362 of *Lecture Notes in Computer Science*, pages 142–157. Springer, 2012.

[13] F. Horozal, M. Kohlhase, and F. Rabe. Extending MKM Formats at the Statement Level. In J. Campbell, J. Carette, G. Dos Reis, J. Jeuring, P. Sojka, V. Sorge, and M. Wenzel, editors, *Intelligent Computer Mathematics*, volume 7362 of *Lecture Notes in Computer Science*, pages 64–79. Springer, 2012.

[14] M. Iancu and F. Rabe. Management of Change in Declarative Languages. In J. Campbell, J. Carette, G. Dos Reis, J. Jeuring, P. Sojka, V. Sorge, and M. Wenzel, editors, *Intelligent Computer Mathematics*, volume 7362 of *Lecture Notes in Computer Science*, pages 325–340. Springer, 2012.

[15] M. Codescu, F. Horozal, M. Kohlhase, T. Mossakowski, and F. Rabe. Project Abstract: Logic Atlas and Integrator (LATIN). In J. Davenport, W. Farmer, F. Rabe, and J. Urban, editors, *Intelligent Computer Mathematics*, volume 6824 of *Lecture Notes in Computer Science*, pages 289–291. Springer, 2011.

[16] F. Rabe, M. Kohlhase, and C. Sacerdoti Coen. A Foundational View on Integration Problems. In J. Davenport, W. Farmer, F. Rabe, and J. Urban, editors, *Intelligent Computer Mathematics*, volume 6824 of *Lecture Notes in Computer Science*, pages 107–122. Springer, 2011.

[17] F. Horozal, A. Iacob, C. Jucovschi, M. Kohlhase, and F. Rabe. Combining Source, Content, Presentation, Narration, and Relational Representation. In J. Davenport, W. Farmer, F. Rabe, and J. Urban, editors, *Intelligent Computer Mathematics*, volume 6824 of *Lecture Notes in Computer Science*, pages 212–227. Springer, 2011.

[18] C. David, M. Kohlhase, C. Lange, F. Rabe, and V. Zholudev. Publishing Math Lecture Notes as Linked Data. In L. Aroyo, G. Antoniou, E. Hyvönen, A. ten Teije, H. Stuckenschmidt, L. Cabral, and T. Tudorache, editors, *The Semantic Web: Research and Applications*, volume 6089 of *Lecture Notes in Computer Science*, pages 370–375. Springer, 2010.

[19] M. Kohlhase, F. Rabe, and V. Zholudev. Towards MKM in the Large: Modular Representation and Scalable Software Architecture. In S. Autexier, J. Calmet, D. Delahaye, P. Ion, L. Rideau, R. Rioboo, and A. Sexton, editors, *Intelligent Computer Mathematics*, volume 6167 of *Lecture Notes in Computer Science*, pages 370–384. Springer, 2010.

[20] V. Zholudev, M. Kohlhase, and F. Rabe. A [insert XML Format] Database for [insert cool application]. In *XMLPrague 2010*, Proceedings of XMLPrague. XMLPrague.cz, 2010.

[21] S. Awodey and F. Rabe. Kripke Semantics for Martin-Löf's Extensional Type Theory. In P. Curien, editor, *Typed Lambda Calculi and Applications (TLCA)*, volume 5608 of *Lecture Notes in Computer Science*, pages 249–263. Springer, 2009.

[22] J. Gičeva, C. Lange, and F. Rabe. Integrating Web Services into Active Mathematical Documents. In J. Carette, L. Dixon, C. Sacerdoti Coen, and S. Watt, editors, *Intelligent Computer Mathematics*, volume 5625 of *Lecture Notes in Computer Science*, pages 279–293. Springer, 2009.

[23] K. Sojakova and F. Rabe. Translating Dependently-Typed Logic to First-Order Logic. In A. Corradini and U. Montanari, editors, *Recent Trends in Algebraic Development Techniques*, volume 5486 of *Lecture Notes in Computer Science*, pages 326–341. Springer, 2009.

[24] C. Benzmüller, F. Rabe, and G. Sutcliffe. THF0 – The core of the TPTP Language for Higher-Order Logic. In A. Armando, P. Baumgartner, and G. Dowek, editors, *4th International Joint Conference on Automated Reasoning*, volume 5195 of *Lecture Notes in Computer Science*, pages 491–506. Springer, 2008.

[25] M. Kohlhase, C. Müller, and F. Rabe. Notations for Living Mathematical Documents. In S. Autexier, J. Campbell, J. Rubio, V. Sorge, M. Suzuki, and F. Wiedijk, editors, *Mathematical Knowledge Management*, volume 5144 of *Lecture Notes in Computer Science*, pages 504–519. Springer, 2008.

[26] F. Rabe. First-Order Logic with Dependent Types. In N. Shankar and U. Furbach, editors, *Automated Reasoning*, volume 4130 of *Lecture Notes in Computer Science*, pages 377–391. Springer, 2006.

5.3 Under Review

[1] M. Kohlhase, D. Müller, S. Owre, and F. Rabe. Making PVS Accessible to Generic Services. Submitted to conference on Interactive Theorem Proving; see https://kwarc.info/people/frabe/Research/KMOR_pvs_17.pdf, 2017.

[2] F. Rabe. A Modular Type Reconstruction Algorithm. Submitted to journal ACM Transactions on Computational Logic; see https://kwarc.info/people/frabe/Research/rabe_recon_17.pdf, 2017.

[3] F. Rabe. The MMT Perspective on Conservativity. Submitted to conference on Conference on Algebra and Coalgebra in Computer Science; see https://kwarc.info/people/frabe/Research/rabe_cons_16.pdf, 2017.

[4] D. Müller, T. Gauthier, C. Kaliszyk, M. Kohlhase, and F. Rabe. A Standard for Aligning Mathematical Concepts. Submitted to conference on Conference on Intelligent Computer Mathematics; see https://kwarc.info/people/frabe/Research/GKKMR_alignments_17.pdf, 2017.

5.4 Refereed Articles in Other Collections

[1] C. Kaliszyk, F. Rabe, and G. Sutcliffe. TH1: The TPTP Typed Higher-Order Form with Rank-1 Polymorphism. In P. Fontaine, S. Schulz, and J. Urban, editors, *Workshop on Practical Aspects of Automated Reasoning*, pages 41–55, 2016.

[2] F. Rabe. A Logic-Independent IDE. In C. Benzmüller and B. Woltzenlogel Paleo, editors, *Workshop on User Interfaces for Theorem Provers*, volume 167 of *Electronic Notes in Theoretical Computer Science*, pages 48–60. Elsevier, 2014.

[3] M. Iancu and F. Rabe. (Work-in-Progress) An MMT-Based User-Interface. In C. Kaliszyk and C. Lüth, editors, *Workshop on User Interfaces for Theorem Provers*, 2012.

[4] F. Rabe. Representing Isabelle in LF. In K. Crary and M. Miculan, editors, *Logical Frameworks and Meta-languages: Theory and Practice*, volume 34 of *Electronic Proceedings in Theoretical Computer Science*, pages 85–100. Electronic Proceedings in Theoretical Computer Science, 2010.

[5] F. Rabe and C. Schürmann. A Practical Module System for LF. In J. Cheney and A. Felty, editors, *Proceedings of the Workshop on Logical Frameworks: Meta-Theory and Practice (LFMTP)*, volume LFMTP'09 of *ACM International Conference Proceeding Series*, pages 40–48. ACM Press, 2009.

[6] F. Horozal and F. Rabe. Representing Model Theory in a Type-Theoretical Logical Framework. In M. Ayala-Rincón and F. Kamareddine, editors, *Fourth Workshop on Logical and Semantic Frameworks, with Applications*, volume 256 of *Electronic Notes in Theoretical Computer Science*, pages 49–65. Elsevier, 2009.

[7] C. Lange, S. McLaughlin, and F. Rabe. Flyspeck in a Semantic Wiki. In C. Lange, S. Schaffert, H. Skaf-Molli, and M. Völkel, editors, *Semantic Wiki Workshop*, volume 360 of *CEUR Workshop Proceedings*, pages 67–81. CEUR-WS.org, 2008.

[8] F. Rabe and M. Kohlhase. An Exchange Format for Modular Knowledge. In G. Sutcliffe, P. Rudnicki, R. Schmidt, B. Konev, and S. Schulz, editors, *Proceedings of the LPAR Workshops on Knowledge Exchange: Automated Provers and Proof Assistants, and The 7th International Workshop on the Implementation of Logics*, volume 418 of *CEUR Workshop Proceedings*, pages 50–68. CEUR-WS.org, 2008.

[9] F. Rabe. Towards Determining the Subset Relation between Propositional Modal Logics. In G. Sutcliffe, R. Schmidt, and S. Schulz, editors, *Proceedings of the FLoC 06 Workshop on Empirically Successful Computerized Reasoning, 3rd International Joint Conference on Automated Reasoning*, volume 192 of *CEUR Workshop Proceedings*, pages 126–140. CEUR-WS.org, 2006.

[10] F. Rabe, S. Schlager, and P. Schmitt. A Sequent Calculus for a First-order Dynamic Logic with Trace Modalities for Promela$^+$. In *Short Paper Proceedings of the International Conference on Logic for Programming, Artificial Intelligence, and Reasoning*, pages 21–27, 2005.

5.5 Invited Articles in Collections

[1] F. Rabe. Representing Logics and Logic Translations. In D. Wagner et al., editor, *Ausgezeichnete Informatikdissertationen 2008*, volume D-9 of *Lecture Notes in Informatics*, pages 201–210. Gesellschaft für Informatik e.V. (GI), 2009. English title: Outstanding Dissertations in Computer Science 2008.

5.6 Theses

[1] F. Rabe. *A Scalable Logical Framework*. Habilitation thesis, Jacobs University Bremen, 2014. see http://kwarc.info/frabe/Research/rabe_habil_14.pdf.

[2] F. Rabe. *Representing Logics and Logic Translations (Summary)*. PhD thesis, Jacobs University Bremen, 2008. see http://kwarc.info/frabe/Research/phdthesis_summary.pdf.

[3] F. Rabe. *Representing Logics and Logic Translations*. PhD thesis, Jacobs University Bremen, 2008. see http://kwarc.info/frabe/Research/phdthesis.pdf.

[4] F. Rabe. A Dynamic Logic with Temporal Operators for Promela. Master's thesis, Universität Karlsruhe, Germany, 2004.

5.7 Edited Collections

[1] H. Geuvers, M. England, O. Hasan, F. Rabe, and O. Teschke, editors. *Intelligent Computer Mathematics*, Lecture Notes in Computer Science. Springer, 2017. in preparation.

[2] F. Rabe and M. Miculan, editors. *LFMTP: Proceedings of the Workshop on Logical Frameworks: Meta-Theory and Practice*, ACM International Conference Proceeding Series. ACM, 2017. in preparation.

[3] 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.

[4] M. Kerber, J. Carette, C. Kaliszyk, F. Rabe, and V. Sorge, editors. *Intelligent Computer Mathematics*, volume 9150 of *Lecture Notes in Computer Science*. Springer, 2015.

[5] C. Lange, D. Aspinall, J. Carette, J. Davenport, A. Kohlhase, M. Kohlhase, P. Libbrecht, P. Quaresma, F. Rabe, P. Sojka, I. Whiteside, and W. Windsteiger, editors. *Workshops and Work in Progress at CICM 2013*, volume 1010 of *CEUR Workshop Proceedings*. CEUR-WS.org, 2013.

[6] A. Asperti, J. Davenport, W. Farmer, F. Rabe, and J. Urban, editors. *Intelligent Computer Mathematics, Work-in-Progress Proceedings*, volume UBLCS-2011-04 of *Technical Reports of University of Bologna*. University of Bologna, 2011.

[7] J. Davenport, W. Farmer, F. Rabe, and J. Urban, editors. *Intelligent Computer Mathematics*, volume 6824 of *Lecture Notes in Computer Science*. Springer, 2011.

[8] H. Geuvers, G. Nadathur, F. Rabe, and C. Schürmann, editors. *LFMTP 2011 - MLPA 2011 Informal Proceedings*, 2011. see http://kwarc.info/frabe/events/mlpa-11/index.html.

[9] F. Rabe and C. Schürmann, editors. *MLPA '10: Proceedings of the 2nd Workshop on Modules and Libraries for Proof Assistants*, 2010. see http://kwarc.info/frabe/events/mlpa-10.html.

[10] F. Rabe and C. Schürmann, editors. *MLPA '09: Proceedings of the 1st Workshop on Modules and Libraries for Proof Assistants*, volume 429 of *ACM International Conference Proceeding Series*. ACM, 2009.

5.8 Reviews

[1] F. Rabe. Review of "Reasoning in Simple Type Theory – Festschrift in Honor of Peter B. Andrews on His 70th Birthday". *Bulletin of Symbolic Logic*, 16(3):409–411, 2010.

5.9 Other Research Publications (most of them lightly refereed)

[1] M. Codescu, T. Mossakowski, and F. Rabe. Selecting Colimits for Parameterisation and Networks of Specifications. In M. Roggenbach and P. James, editors, *Workshop on Algebraic Development Techniques*, 2016.

[2] C. Kaliszyk, M. Kohlhase, D. Müller, and F. Rabe. A Standard for Aligning Mathematical Concepts. In A. Kohlhase, M. Kohlhase, P. Libbrecht, B. Miller, F. Tompa, A. Naummowicz, W. Neuper, P. Quaresma, and M. Suda, editors, *Work in Progress at CICM 2016*, volume 1785 of *CEUR Workshop Proceedings*, pages 229–244. CEUR-WS.org, 2016.

[3] R. Kumar and F. Rabe. Breakout session on A standard for system integration and proof interchange. In G. Dowek, C. Dubois, B. Pientka, and F. Rabe, editors, *Dagstuhl Seminar on Universality of Proofs*, volume 16421 of *Dagstuhl Reports*, pages 94–94. Schloss Dagstuhl–Leibniz-Zentrum fuer Informatik, 2016.

[4] F. Rabe. MMT: A UniFormal Approach to Knowledge Representation. In G. Dowek, C. Dubois, B. Pientka, and F. Rabe, editors, *Dagstuhl Seminar on Universality of Proofs*, volume 16421 of *Dagstuhl Reports*, pages 88–88. Schloss Dagstuhl–Leibniz-Zentrum fuer Informatik, 2016.

[5] F. Rabe. MMT Objects. In M. England, J. Davenport, A. Kohlhase, M. Kohlhase, P. Libbrecht, W. Neuper, P. Quaresma, A. Sexton, P. Sojka, J. Urban, and S. Watt, editors, *Workshops and Work in Progress at CICM 2014: OpenMath Workshop*, volume 1186 of *CEUR Workshop Proceedings*. CEUR-WS.org, 2014.

[6] M. Iancu, F. Mance, and F. Rabe. The Scala-REPL + MMT as a lightweight mathematical user interface. In C. Lange, D. Aspinall, J. Carette, J. Davenport, A. Kohlhase, M. Kohlhase, P. Libbrecht, P. Quaresma, F. Rabe, P. Sojka, I. Whiteside, and W. Windsteiger, editors, *Workshops and Work in Progress at CICM 2013: Mathematical User Interfaces (MathUI)*, volume 1010 of *CEUR Workshop Proceedings*. CEUR-WS.org, 2013.

[7] M. Codescu, F. Horozal, T. Mossakowski, and F. Rabe. Compiling Logics. In *Workshop on Algebraic Development Techniques*, 2012.

[8] M. Codescu, F. Horozal, I. Ignatov, and F. Rabe. Representing CASL in a Proof-Theoretical Logical Framework. In *Workshop on Algebraic Development Techniques*, 2012.

[9] F. Rabe and K. Sojakova. Mechanically Verifying Logic Translations. In *Workshop on Algebraic Development Techniques*, 2012.

[10] F. Horozal and F. Rabe. Representing Categories of Theories in a Proof-Theoretical Logical Framework. In *Workshop on Algebraic Development Techniques*, 2012.

[11] F. Horozal, M. Kohlhase, and F. Rabe. Extending OpenMath with Sequences. In A. Asperti, J. Davenport, W. Farmer, F. Rabe, and J. Urban, editors, *Intelligent Computer Mathematics, Work-in-Progress Proceedings*, volume UBLCS-2011-04 of *Technical Report, University of Bologna*, pages 58–72. University of Bologna, 2011.

[12] M. Iancu, M. Kohlhase, and F. Rabe. Translating the Mizar Mathematical Library into OMDoc format. Technical Report KWARC Report-01/11, Jacobs University Bremen, 2011.

[13] M. Codescu, F. Horozal, M. Kohlhase, T. Mossakowski, and F. Rabe. A Proof Theoretic Interpretation of Model Theoretic Hiding. In *Workshop on Algebraic Development Techniques*, 2010.

[14] M. Codescu, F. Horozal, M. Kohlhase, T. Mossakowski, F. Rabe, and K. Sojakova. Towards Logical Frameworks in the Heterogeneous Tool Set Hets. In *Workshop on Algebraic Development Techniques*, 2010.

[15] C. David, M. Kohlhase, C. Lange, F. Rabe, and V. Zholudev. JOBAD/MMT – Interactive Mathematics. In A. Giurca, B. Endres-Niggemeyer, C. Lange, L. Maicher, and P. Hitzler, editors, *AI Mashup Challenge at ESWC*, 2010. see `http://sites.google.com/a/fh-hannover.de/aimashup/home/jobad`.

[16] C. David, C. Lange, and F. Rabe. Interactive Documents as Interfaces to Computer Algebra Systems: JOBAD and Wolfram—Alpha. In D. Delahaye and R. Rioboo, editors, *CALCULEMUS (Emerging Trends)*, Technical Reports of CEDRIC (CNAM/ENSIIE), pages 13–30. Centre d'Étude et de Recherche en Informatique du CNAM (Cédric), 2010.

[17] S. Dumbrava and F. Rabe. Structuring Theories with Partial Morphisms. In *Workshop on Algebraic Development Techniques*, 2010.

[18] M. Kohlhase, C. Lange, C. Müller, N. Müller, and F. Rabe. Notations for Active Mathematical Documents. Technical Report 2009-1, Jacobs University Bremen, 2009.

[19] M. Kohlhase and F. Rabe. Semantics of OpenMath and MathML 3. In *Proceedings of the OpenMath workshop*, 2009.

[20] F. Rabe and M. Kohlhase. A Better Role System for OpenMath. In *Proceedings of the OpenMath workshop*, 2009.

[21] C. Benzmüller, F. Rabe, C. Schürmann, and G. Sutcliffe. Evaluation of Systems for Higher-order Logic (ESHOL). In B. Konev, R. Schmidt, and S. Schulz, editors, *Workshop on Practical Aspects of Automated Reasoning at IJCAR 2008*, volume 373 of *CEUR Workshop Proceedings*, pages 22–23. CEUR-WS.org, 2008.

[22] K. Sojakova and F. Rabe. Translating Dependently-Typed Logic to First-Order Logic. In A. Corradini and U. Montanari, editors, *Workshop on Algebraic Development Techniques*, 2008.

[23] M. Kohlhase, C. Lange, and F. Rabe. Presenting Mathematical Content with Flexible Elisions. In *Proceedings of the OpenMath/JEM workshop*, 2007.

[24] F. Rabe. OMDoc Theory Graphs Revisited. In *Proceedings of the OpenMath/JEM workshop*, 2007.

[25] F. Rabe, S. Schlager, and P. Schmitt. A Sequent Calculus for a First-order Dynamic Logic with Trace Modalities for Promela$^+$. In *Proceedings of the 17th Nordic Workshop on Programming Theory*, 2005.

5.10 Textbook-Style Lecture Notes

[1] F. Rabe. *Lecture Notes on Algorithms and Data Structures*. 2017. see https://github.com/florian-rabe/Teaching/tree/master/AaDS_17.

[2] F. Rabe. *Lecture Notes on Secure and Dependable Systems*. 2017. see https://github.com/florian-rabe/Teaching/tree/master/SaDS_17.

[3] F. Rabe. *Integrated Lecture Notes on Logic (2008–2016)*. 2016. see https://svn.kwarc.info/repos/frabe/Teaching/integrated_notes/notes_logic.pdf.

5.11 Selected Service Documents

[1] F. Rabe. Advice for Students, 2017. see https://svn.kwarc.info/repos/frabe/Teaching/general/advice_for_students.pdf.

[2] F. Rabe. Advice for PC Chairs, 2011.