

# Curriculum Vitae

Ulrich Wilhelm Kohlenbach

## CURRENT AFFILIATION:

Full Professor (C4), Chair for Algebra and Logic  
Department of Mathematics  
Technische Universität Darmstadt  
Schlossgartenstrasse 7  
D-64289 Darmstadt, Germany  
email: kohlenbach@mathematik.tu-darmstadt.de  
Homepage: <http://www.mathematik.tu-darmstadt.de/~kohlenbach/>

## PERSONAL DATA:

Born on 27.07.1962 (July 27, 1962) in Frankfurt am Main (Germany)  
Parents: Prof. Dr. Hans Willy Kohlenbach and Renate Kohlenbach (Naschke)  
Married to: Gabriele Bahl-Kohlenbach (since 14.11.91) with whom I have a daughter.  
Religion: roman catholic

## EDUCATION:

- 10.12.1980 Graduation ('Abitur') from Lessing-Gymnasium (High School) in Frankfurt (including: Great Latinum, Graecum).
- 1981-86 Study of mathematics, philosophy and linguistics at University of Frankfurt ('J.W.Goethe-Universität')
- 01.07.1986 Master degree ('Diplom') in Mathematics at University of Frankfurt. Adviser of Master Thesis ('Diplomarbeit') Prof. Dr. H. Luckhardt.
- 18.10.90 Ph.D. in Mathematics ('Dr.phil.nat.') at University of Frankfurt (Thesis advisor: Prof. Dr. H. Luckhardt).
- 10.07.95 Habilitation ('venia legendi') in Mathematics at University of Frankfurt.
- 10.07.95 Awarded with the title 'Privatdozent' by the Department of Mathematics of the University Frankfurt (until 2001).

## SCHOLARSHIPS:

1981-86 Scholar of 'Studienstiftung des deutschen Volkes'

## ACADEMIC EMPLOYMENT:

- 1983-1985 Student instructor ('Wissenschaftliche Hilfskraft') at the Department of Mathematics, University of Frankfurt
- 16.07.86-15.7.91 Graduate assistant ('Wissenschaftlicher Mitarbeiter') at the Department of Mathematics of the University of Frankfurt in the group 'Real Analysis and Potential Theory' (Prof. Dr. J. Bliedtner)
- 16.07.91-15.07.96 Postdoctoral assistant (and July 95-July 96 'Privatdozent') at the Department of Mathematics of the University of Frankfurt in the group 'Number Theory and Functional Analysis' (Prof. Dr. W. Schwarz). Further research and teaching activities in Mathematical Logic.
- Sept.96 - June 97 Visiting assistant professor, Department of Mathematics, University of Michigan, Ann Arbor.
- 01.07.97-30.06.98 Research Assistant Professor ('forskningsadjunkt'), BRICS ('Basic Research in Computer Science'), Department of Computer Science, University of Aarhus, Denmark.
- 01.07.98-31.08.00 Research Associate Professor ('forskningslektor'), BRICS, Department of Computer Science, University of Aarhus, Denmark.
- 01.09.00-31.03.04 Associate Professor (with tenure, 'lektor'), Department of Computer Science, University of Aarhus, Denmark
- Since 01.04.04 Full Professor (C4), Chair for Algebra and Logic, Department of Mathematics, Darmstadt University of Technology, Germany.

## OFFERS REJECTED:

1. Lectureship, Dept. of Computer Science, U of Wales, Swansea (2000).
2. Chair for Mathematical Logic and the Foundations of Mathematics ('L.E.J. Brouwer Chair'), University of Amsterdam, The Netherlands (2004).

## ADMINISTRATIVE FUNCTIONS:

Prodekan (Vice-Dean): 1.10.06-31.3.08, Dekan (Dean): 1.4.08-31.8.08,

Prodekan (Vice-Dean): 1.09.08-31.03.10, Dept. of Mathematics, TUD

University Senat Representative for Hiring Committees (Senatsbeauftragter für Berufungsangelegenheiten) 2008-2010.

## PROFESSIONAL ACTIVITIES and MEMBERSHIPS:

Member, Vice President (2006-2008) and President (2008-2012) of ‘Deutsche Vereinigung für mathematische Logik und Grundlagen der exakten Wissenschaften’ (DVMLG)

Speaker of ‘Fachgruppe Logik der DMV’ (2009-12)

Member of ASL Standing Committee ‘Logic in Europe’ (since 2010)

Member of Executive Committee of the Assoc. Symb. Logic (ASL) (since 2011)

Vice President of Assoc. Symb. Logic (ASL) (since 2013-15)

President of Assoc. Symb. Logic (ASL) (since 2016)

Member of FWO (Research Foundation Flanders) expert panel: Mathematical Sciences (since 2016)

Member of American Mathematical Society (AMS)

Member of Deutsche Mathematiker Vereinigung (DMV)

Member of Danish Mathematical Society

Member of Deutscher Hochschulverband

## EDITORIAL BOARDS:

Managing resp. Coordinating Editor ‘Annals of Pure and Applied Logic’ (since 2005)

Editorial Board Member ‘Notre Dame Journal of Formal Logic’ (2004-2015)

Editorial Board Member ‘Mathematical Logic Quarterly’ (2006-2016).

Editorial Board Member ‘Computability’ (since 2011).

Editorial Board Member ‘Logical Methods in Computer Science’ (since 2015).

Advisory Board Member of Springer book series ‘Theory and Applications of Computability Theory’.

Refereeing for numerous proceedings and journals including

- Transactions of the American Mathematical Society,
- Fundamenta Mathematicae,
- Journal of the London Mathematical Society,
- The Journal of Symbolic Logic,
- Annals of Pure and Applied Logic,
- Notre Dame Journal of Formal Logic,
- Logic and Computation,
- Archive for Mathematical Logic,
- Mathematical Structures in Computer Science,
- Indagationes Mathematicae,

- ACM Transactions on Computational Logic,
- Theoretical Computer Science,
- Journal of Mathematical Analysis and Applications,
- Nonlinear Analysis,
- International Journal of Mathematics and Mathematical Sciences,
- Fixed Point Theory and Applications,
- Mathematical and Computer Modelling,
- Journal of Optimization Theory and Applications,
- Ergodic Theory and Dynamical Systems
- Applied Mathematics and Computation
- Optimization Letters

Reviewer for

- Mathematical Reviews (until 2006)
- ACM-Computing Reviews (until 2002).

DISTINCTIONS and AWARDS:

- Corresponding Member of the Scientific Society ('Wissenschaftliche Gesellschaft') at the J.W.Goethe-University Frankfurt (since 2008).
- Kurt Gödel Research Prize Fellowship 2011 (category: unrestricted) of the Kurt Gödel Society (a personal prize of 100.000 EUR and a gold medal).
- Invited speaker (section Logic and Foundations) at ICM 2018 in Rio.

PROGRAM and ORGANIZING COMMITTEES:

1991-95 Member of 'Fachbereichsrat' (Faculty Committee), University of Frankfurt

Member of program and organizing committee of 'Workshop: Proof Theory and Complexity' held at BRICS, August 3-7, 1998.

Member of program and organizing committee of 'EEF Foundations Summer School on Logical Methods', BRICS, Aarhus, June 25-July 6, 2001.

Member of Organizing Committee of FLoC 2002, Copenhagen.

Conference Chair of LICS'2002 (as part of FLOC 2002, Copenhagen, 20.07.-01.08.2002).

Member of Program Committee of CSL 2002, Edinburgh, Sept. 22-25, 2002.

Member of Scientific Committee of BACC'02, Lisbon, June 28-29, 2002.

Member of local organizing committee of 18th IEEE Conference on Computational Complexity, Aarhus July 7-10, 2003.

Member of scientific organization committee for 'Workshop on Proof Theory and Algorithms' Edinburgh, March 23-29, 2003.

2002-2005: Member of the Danish Censorcorps for Computer Science

2003-2005: Member of the LICS Organizing Committee.

Member of Program Committee of CSL 2005, Oxford, Aug. 22-25, 2005.

Member of Program and Organizing Committee of ‘Tagung: Logik und Wissen’, TU Darmstadt, June 24-26, 2005.

Member of Program Committee of CSL 2006, Szeged, Sept. 25-29, 2006.

Organizer (with G. Mints and B. Moroz) of Activity in Logic from March 07-June 07 at the Max Planck Institute for Mathematics, Bonn.

Organizer (with G. Mints) of ‘Conference on Methods of Proof Theory in Mathematics’, June 3-10, 2007, Max Planck Institute for Mathematics, Bonn.

Member of Program Committee for ASL Logic Colloquium 2007, Wroclaw, July 14-19, 2007.

Member of Program Committee ‘Joint Workshop Domain VIII and Computability over Continuous Data Types’, Novosibirsk, Sept. 11-15, 2007.

Organizer (with S. Buss and H. Schwichtenberg) Oberwolfach Tagung ‘Mathematical Logic: Proof Theory, Constructive Mathematics. April 6-12, 2008.

Member of Program Committee for WoLLIC 2008, Edinburgh, July 1-4, 2008.

Member of PC (chair) and organizing committee (chair) of Colloquium Logicum, Darmstadt, Sept. 10-12, 2008.

External member of evaluation committee for a Full Professorship in Programming Languages and Formal Methods, Department of Computer Science, Aarhus University (Fall 2008).

External member of evaluation committee for a Full Professorship in Mathematical Computer Science, Department of Computer Science, Aarhus University (Fall 2008).

Member of Program Committee of ‘Colloquium Logicum’, Münster, Sep. 22-24, 2010.

Organizer (together with J. Avigad and H. Towser) of AMS-ASL Special Session on ‘Logic and Analysis’ at ‘Joint Mathematics Meeting’, New Orleans, Jan. 6-9, 2011.

Organizer (other with S. Buss and M. Rathjen) of Oberwolfach Workshop on ‘Mathematical Logic’, Nov. 6-12, 2011.

Chair of organizing committee of ‘WoLLIC 2013’, Darmstadt, Aug. 20-23, 2013.

Organizer and Program Chair (together with G. Lopez-Acedo), ‘IRTG 1529 Research Seminar: Proof Mining and Nonlinear Analysis’, TU Darmstadt, February 26-28, 2014.

Member of PC of CCA 2014, Darmstadt, July 21-24, 2014.

PC chair of ‘WoLLIC 2014’, Valparaiso, Chile, Sep. 1-4, 2014.

Organizer (other with S. Buss and M. Rathjen) of Oberwolfach Workshop on ‘Mathematical Logic’, Nov. 16-22, 2014.

Member Scientific Committee of ‘11th International Conference on Fixed Point Theory and Applications’, July 20-24, 2015, Galatasaray University, Istanbul, Turkey.

PC Chair of ‘CL&C’16, 6th International Workshop on Classical Logic and Computation’, June 23, Porto, Portugal.

Organizer (other with S. Buss, R. Iemhoff, M. Rathjen) of Oberwolfach Workshop on ‘Mathematical Logic’, Nov. 5-11, 2017.

Organizer (with M. Bordinisky) of ‘AAA96 - 96. Arbeitstagung Allgemeine Algebra’, June 1-3, 2018, TU Darmstadt.

Member of WoLLIC Steering Committee (since 2014).

Member of LCC (Logic and Computational Complexity) Steering Committee (since 2016).

Member Scientific Committee of ‘12th International Conference on Fixed Point Theory and Applications’, July 24-28, 2017, Newcastle, New South Wales, Australia.

## Grants:

Grant of the Danish Natural Science Research Council for my project ‘Proof Mining: A Logical Approach to Computational Mathematics’, 01.01.2003-31.13.2005, Sagsnr.: 21-02-0474.

Member of ‘Deutsch-Russisches Kooperationsprojekt: Berechnungen über nichtdiskreten Strukturen (DFG, 2006-2008).

Member of Deutsch-Südafrikanisches Kooperationsprojekt ”From continuity to computability, (DFG/NRF 445 SUA-113/20/0-1), 2007-2009.

Members of APSEM II (IST-2001-38957 Programme of EU).

Principal investigator of project ‘Extraction of effective bounds from proofs based on sequential compactness via logical analysis’, German Science Foundation (DFG Project KO 1737/5-1), 2009-2012.

Principal investigator of continuation project ‘Extraction of effective bounds from proofs based on sequential compactness via logical analysis II’, German Science Foundation (DFG Project KO 1737/5-2), 2013-2015.

Since 2013: principle investigator of ‘International Research Training Group 1529: Mathematics Fluid Dynamics’ (Tokyo-Darmstadt).

Principal investigator of project ‘Proof Mining in Conex Optimization and related areas’, German Science Foundation (DFG Project KO 1737/6-1), 2018-2021.

## List of publications

### BOOK

Ulrich Kohlenbach: ‘Applied Proof Theory: Proof Interpretations and their Use in Mathematics.’ Springer Monographs in Mathematics, xx+536pp., ISBN 978-3-540-77532-4, Springer-Verlag Berlin Heidelberg (2008).

### ARTICLES

#### I. Journal Publications:

1. Pointwise hereditary majorization and some application. *Arch. Math. Logic* **31**, pp. 227–241 (1992).
2. Effective bounds from ineffective proofs in analysis: an application of functional interpretation and majorization. *J. Symbolic Logic* **57** pp. 1239–1273 (1992).
3. Remarks on Herbrand normal forms and Herbrand realizations. *Arch. Math. Logic* **31**, pp. 305–317 (1992).
4. Effective moduli from ineffective uniqueness proofs. An unwinding of de La Vallée Poussin’s proof for Chebycheff approximation. *Annals of Pure and Applied Logic* **64**, pp. 27–94 (1993).
5. New effective moduli of uniqueness and uniform a-priori estimates for constants of strong unicity by logical analysis of known proofs in best approximation theory. *Numer.Funct.Anal.and Optimiz.* **14**, pp. 581–606 (1993).
6. A note on the  $\Pi_2^0$ -induction rule. *Arch. Math. Logic* **34**, pp. 279–283 (1995).
7. Mathematically strong subsystems of analysis with low rate of growth of provably recursive functionals. *Arch. Math. Logic* **36**, pp. 31–71 (1996).
8. Relative constructivity. *J. Symbolic Logic* **63**, pp. 1218-1238 (1998).
9. On the arithmetical content of restricted forms of comprehension, choice and general uniform boundedness. *Annals of Pure and Applied Logic* **95**, pp. 257-285 (1998).
10. Elimination of Skolem functions for monotone formulas in analysis. *Arch. Math. Logic* **37**, pp. 363–390 (1998).
11. Proof theory and computational analysis. *Electronic Notes in Theoretical Computer Science* vol.13, Elsevier (<http://www.elsevier.nl/locate/entcs/volume13.html>), pp. 34 (1998).
12. A note on Goodman’s theorem. *Studia Logica* **63**, pp. 1-5 (1999).
13. On the no-counterexample interpretation. *J. Symbolic Logic* **64**, pp. 1491-1511 (1999).

14. Things that can and things that can't be done in PRA. *Annals of Pure and Applied Logic* **102**, pp. 223-245 (2000).
15. A note on Spector's quantifier-free extensionality rule. *Arch. Math. Logic* **40**, pp. 89-92 (2001).
16. Intuitionistic choice and restricted classical logic. *Math. Logic Quarterly* **47**, pp. 455-460 (2001).
17. A quantitative version of a theorem due to Borwein-Reich-Shafrir. *Numer.Funct.Anal.and Optimiz.* **22**, pp. 641-656 (2001).
18. On uniform weak König's lemma. *Ann Pure Applied Logic* **114**, pp. 103-116 (2002).
19. On weak Markov's principle. *Math. Logic Quarterly* **48**, **suppl 1**, pp. 59-65 (2002).
20. (With Paulo Oliva) Proof Mining in  $L_1$ -approximation. *Ann. Pure Appl. Logic* **121**, pp. 1-38 (2003).
21. (With Paulo Oliva) Proof Mining: A Systematic Way of Analyzing Proofs in Mathematics. *Proceedings of the Steklov Institute of Mathematics* **242**, pp. 136-164 (2003) [From *Trudy Matematicheskogo Instituta imeni V.A. Steklova*, vol. 242, pp. 147-175, 2003]
22. (With Laurentiu Leustean) Mann iterates of directionally nonexpansive mappings in hyperbolic spaces. *Abstract and Applied Analysis*, volume 2003, issue 8, pp. 449-477 (2003).
23. Uniform asymptotic regularity for Mann iterates. *J. Math. Anal. Appl.* **279**, pp. 531-544 (2003).
24. Some logical metatheorems with applications in functional analysis. *Trans. Amer. Math. Soc.* **357**, no. 1, pp. 89-128 (2005)
25. (With Philipp Gerhardy) Extracting Herbrand Disjunctions by Functional Interpretation. *Arch. Math. Logic* **44**, pp. 633-644 (2005).
26. (With Mircea-Dan Hernest) A complexity analysis of functional interpretations. *Theoretical Computer Science* **338**, pp. 200-246 (2005).
27. Some computational aspects of metric fixed point theory. *Nonlinear Analysis* **61**, pp. 823-837 (2005).
28. (With Philipp Gerhardy) Strongly uniform bounds from semi-constructive proofs. *Ann. Pure Appl. Logic* **141**, pp. 89-107 (2006).
29. A logical uniform boundedness principle for abstract metric and hyperbolic spaces. *Electronic Notes in Theoretical Computer Science* **165**, pp. 81-93 (2006).
30. (With Laurentiu Leustean) The approximate fixed point property in product spaces. *Nonlinear Analysis* **66**, pp. 806-818 (2007).

31. (With Thomas Streicher) Shoenfield is Gödel after Krivine. *Math. Logic Quarterly* **53**, pp. 176-179 (2007).
32. Proof interpretations and the computational content of proofs in mathematics. *Bulletin EATCS* **93**, pp. 143-173 (2007).
33. (With Philipp Gerhardy) General logical metatheorems for functional analysis. *Trans. Amer. Math. Soc.* **360**, pp. 2615-2660 (2008).
34. Herbrand's theorem and extractive proof theory. *Gazette des Mathématiciens* **118**, pp. 29-41 (2008).
35. (With Laurentiu Leustean) A quantitative Mean Ergodic Theorem for uniformly convex Banach spaces. *Ergodic Theory and Dynamical Systems* **29**, pp. 1907-1915 (2009).
36. (With Alexander Kreuzer) Ramsey's theorem for pairs and provably recursive functions. *Notre Dame Journal of Formal Logic* **50**, pp. 427-444 (2009).
37. (With Laurentiu Leustean) Asymptotically nonexpansive mappings in uniformly convex hyperbolic spaces. *Journal of the European Mathematical Society* **12**, pp. 71-92 (2010).
38. (With Jaime Gaspar) On Tao's 'finitary' infinite pigeonhole principle. *J. Symbolic Logic* **75**, pp. 355-371 (2010).
39. (With Pavol Safarik) On the computational content of the Bolzano-Weierstraß principle. *Math. Logic Quart* **56**, pp. 508-532 (2010).
40. On quantitative versions of theorems due to F.E. Browder and R. Wittmann. *Advances in Mathematics* **226**, pp. 2764-2795 (2011).
41. (With Daniel Körnlein) Effective rates of convergence for Lipschitzian pseudocontractive mappings in general Banach spaces. *Nonlinear Analysis* **74**, pp. 5253-5267 (2011).
42. A note on the monotone functional interpretation. *Math. Logic Quart.* **57**, pp. 611-614 (2011).
43. On the asymptotic behavior of odd operators. *J. Math. Anal. Appl.* **382**, pp. 615-620 (2011).
44. A uniform quantitative form of sequential weak compactness and Baillon's nonlinear ergodic theorem. *Communications in Contemporary Mathematics* **14**, 20pp. (2012).
45. (with Alexander P. Kreuzer) Term extraction and Ramsey's theorem for pairs. *J. Symb. Logic* **77**, pp. 853-895 (2012).
46. (with Laurentiu Leustean) On the computational content of convergence proofs via Banach limits. *Philosophical Transactions of the Royal Society A* **370**, pp. 3449-3463 (2012).
47. (with Laurentiu Leustean) Effective metastability of Halpern iterates in CAT(0) spaces. *Advances in Mathematics* **231**, pp. 2526-2556 (2012).

48. Gödel functional interpretation and weak compactness. *Ann. Pure Appl. Logic* **163**, pp. 1560-1579 (2012)
49. (with Katharina Schade) Effective metastability for modified Halpern iterations in  $CAT(0)$  spaces. *Fixed Point Theory and Applications* **2012**, Issue 1, 19pp. (2012).
50. (with Muhammad Aqeel Ahmad Khan) Bounds on Kuhfittig's iteration schema in uniformly convex hyperbolic spaces. *J. Math. Anal. Appl.* **403**, pp. 633-642 (2013).
51. (with Daniel Körnlein) Rate of metastability for Bruck's iteration of pseudocontractive mappings in Hilbert space. *Numer. Funct. Anal. and Optimiz.* **35**, pp. 20-31 (2014).
52. (with Laurentiu Leuştean) Addendum to 'Effective metastability of Halpern iterates in  $CAT(0)$  spaces. *Advances in Mathematics* **231**, pp. 2526-2556 (2012)'. *Advances in Mathematics* **250**, pp. 650-651 (2014).
53. (with Pavol Safarik) Fluctuations, effective learnability and metastability in analysis. *Ann. Pure Appl. Logic* **165**, pp. 266-304 (2014).
54. (with Muhammad Aqeel Ahmad Khan) Quantitative image recovery theorems. *Nonlinear Analysis* **106**, pp. 138-150 (2014).
55. (with Makoto Fujiwara) Classical provability of uniform versions and intuitionistic provability. *Math. Logic Quarterly* **61**, pp. 132-150 (2015).
56. (with Angeliki Koutsoukou-Argyraki) Rates of convergence and metastability for abstract Cauchy problems generated by accretive operators. *J. Math. Anal. Appl.* **423**, pp.1089-1112 (2015).
57. On the disjunctive Markov Principle. *Studia Logica* **103**, pp. 1313-1317 (2015).
58. (with Angeliki Koutsoukou-Argyraki) Effective asymptotic regularity for one-parameter nonexpansive semigroups. *J. Math. Anal. Appl.* vol. 433, pp. 1883-1903 (2016).
59. On the quantitative asymptotic behavior of strongly nonexpansive mappings in Banach and geodesic spaces. *Israel Journal of Mathematics* **216**, pp. 215-246 (2016).
60. (with Daniel Günzel) Logical metatheorems for abstract spaces axiomatized in positive bounded logic. *Advances in Mathematics* **290**, pp. 503-551 (2016).
61. (with Genaro Lopéz-Acedo and Adriana Nicolae) Quantitative asymptotic regularity for the composition of two mappings. *Optimization* **66**, pp. 1291-1299 (2017).
62. (with Adriana Nicolae) A proof-theoretic bound extraction theorem for  $CAT(\kappa)$ -spaces. *Studia Logica* **105**, pp. 611-624 (2017).
63. Recent progress in proof mining in nonlinear analysis. *IFCoLog Journal of Logic and its Applications* **10**, Issue 4, pp. 3357-3406 (2017).
64. (with Laurentiu Leuştean and Adriana Nicolae) Quantitative results on Fejer monotone sequences. *Communications in Contemporary Mathematics* **20** (2018), 42pp., DOI: 10.1142/S0219199717500158.

- 65. (with Miroslav Bačák) On proximal mappings with Young functions in uniformly convex Banach spaces. To appear in: *J. Convex Analysis*.
- 66. A polynomial rate of asymptotic regularity for compositions of projections in Hilbert space. To appear in: *FoCM*.
- 67. (with Makoto Fujiwara) Interrelation between weak fragments of double negation shift and related principles (with Makoto Fujiwara). to appear in: *J. Symb. Logic*.

**II. Invited Articles in Conference Proceedings (refereed to Journal standards):**

- 68. Analysing proofs in analysis. In: W. Hodges, M. Hyland, C. Steinhorn, J. Truss, editors, *Logic: from Foundations to Applications. European Logic Colloquium* (Annual Summer Meeting of the Association for Symbolic Logic, Keele, 1993), pp. 225–260, Oxford University Press (1996).
- 69. Arithmetizing proofs in analysis. In: Larrazabal, J.M., Lascar, D., Mints, G.(eds.), *Logic Colloquium '96* (Annual Summer Meeting of the Association for Symbolic Logic, San Sebastian, 1996), pp. 115–158 (1998), Springer Lecture Notes in Logic **12**.
- 70. The use of a logical principle of uniform boundedness in analysis. In: Cantini, A., Casari, E., Minari, P. (eds.), *Logic and Foundations of Mathematics*, Synthese Library **280**, pp. 93-106, Kluwer Academic Publishers (1999).
- 71. (With Branimir Lambov) Bounds on iterations of asymptotically quasi-nonexpansive functions. In: Falset, J.G., Fuster, E.L., Sims, B. (eds.), *Proc. of the International Conference on Fixed Point Theory and Applications. Valencia 2003*. Yokohama Publishers, pp. 143-172 (2004)

**III. Invited Book Chapters (refereed to Journal standards):**

- 72. Foundational and mathematical uses of higher types. In: Sieg, W. et al. (eds.), *Reflections on the Foundations of Mathematics: Essays in Honor of Solomon Feferman*. Lecture Notes in Logic **15**, pp. 92-116, A.K. Peters (2002).
- 73. Reverse mathematics in higher types. In: Stephen G. Simpson (ed.): *Reverse Mathematics 2001*. Lecture Notes in Logic **21**, pp. 281-295, ASL, A K Peters (2005).
- 74. Effective bounds from proofs in abstract functional analysis. In: Cooper, B., Löwe, B., Sorbi, A. (eds.), ‘New Computational Paradigms: Changing Conceptions of What is Computable’, pp. 223-258, Springer (2008).
- 75. Gödel’s functional interpretation and its use in current mathematics. Invited book chapter for the Gödel Centenary. In: Baaz, M. et al. (eds.), *Kurt Gödel and the Foundations of Mathematics. Horizons of Truth*. Cambridge University Press, New York, pp. 261-298, 2011. Reprinted in: *dialectica* Vol. 62, no. 2, pp. 223-267 (2008).
- 76. On the logical analysis of proofs based on nonseparable Hilbert space theory. In: Feferman, S., Sieg, W. (eds.), *Proofs, Categories and Computations. Essays in Honor of Grigori Mints*. College Publications, pp. 131-143 (2010).

**V. Other Publications:**

77. On the computational content of the Krasnosleski fixed point theorem and its extensions. In: Blanck, J., Brattka, V., Hertling, P. (eds.) *Computability and Complexity in Analysis*. 4th International Workshop, CCA 2000, Swansea, UK, September 17-19, 2000. Selected Papers. Springer LNCS **2064**, pp. 119-145, Springer Berlin (2001).
78. (together with Paulo Oliva) Proof Mining in  $L_1$ -approximation (extended abstract). In: Hofmann, M. (ed.), *Proc. of the 3rd International Workshop on Implicit Computational Complexity, ICC'01* (Aarhus, Denmark, May 20-21, 2001). BRICS Notes Series NS-01-3, pp. 117-122 (2001).
79. Applied Foundations: proof mining in analysis. Newsletter of the Danish Mathematical Society ('Matilde') **13**, pp. 7-9 (2002).
80. (With Y. Akama, S. Berardi, S. Hayashi) An arithmetical hierarchy of the laws of excluded middle and related principles. In: *Proc. 19th Annual IEEE Symposium on Logic in Computer Science (LICS'2004)*, pp. 192-201, IEEE Press (2004).
81. Interview on the Philosophy of Mathematics. Hendricks, V.F., Leitgeb, H., (eds.), *Philosophy of Mathematics: 5 Questions*, pp. 183-190, Automatic Press/VIP (2008).
82. Proof-theoretic Methods in Nonlinear Analysis. Invited paper to appear in: *Proc. ICM2018*.
83. Kreisel's 'shift of emphasis' and contemporary proof mining. Invited chapter for forthcoming book 'Intuitionism, Computation, and Proof: Selected themes from the research of G. Kreisel'.

## THESES:

1. Majorizable functionals and recursion theoretical models for W. Friedrichs calculi of functionals (german). Master thesis ('Diplomarbeit'). Frankfurt 1986, pp. 91.
2. Theory of majorizable and continuous functionals and their use for the extraction of bounds from non-constructive proofs: effective moduli of uniqueness for best approximations from ineffective proofs of uniqueness (german). PhD Dissertation, Frankfurt 1990, pp.xxii+278.
3. Real growth in standard parts of analysis. Habilitationsschrift, pp. xv+166, Frankfurt 1995.

## ABSTRACTS PUBLISHED IN JOURNALS

1. Constructions in classical analysis by unwinding proofs using majorizability (abstract). *J. Symbolic Logic* **57**, p. 307 (1992).
2. Herbrand normal forms in subsystems of (second-order) arithmetic (abstract). *J. Symbolic Logic* **58**, pp. 1148-1149 (1993).
3. Exploiting partial constructivity relatively to non-constructive lemmas in given proofs (abstract). *Bull. Symbolic Logic* **1**, pp. 243-244 (1995).
4. Real growth in standard parts of analysis (abstract). *Bull. Symbolic Logic* **3**, p. 104 (1997).

5. General logical principles of uniform boundedness and their mathematical strength (abstract). *Bull. Symbolic Logic* **3**, p. 387 (1997).
6. Mathematically strong extensions of  $ACA_0$  (abstract). *Bull. Symbolic Logic* **5**, pp. 141-142 (1999).
7. On extensions of weak König's lemma (abstract). *Bull. Symbolic Logic* **6**, p.117 (2000).
8. Applied foundations: recent progress in proof mining. Abstracts of papers presented to the Amer. Math. Soc. **22**, no3. issue 125, p. 436 (2001).
9. (together with Paulo Oliva) Effective bounds on strong unicity in  $L_1$ -approximation (abstract). *Bull. Symbolic Logic* **8**, p. 143 (2002).
10. Proof theoretic applications to functional analysis (abstract). *Bull. Symbolic Logic* **10**, pp. 122-123 (2004).
11. Recent uses of proof theory in nonlinear analysis and geodesic geometry (abstract). *Bull. Symbolic Logic* **13**, p.377 (2007)
12. Applied proof theory: Proof interpretations and their use in mathematics (abstract). *Bull. Symbolic Logic* **16**, pp. 92-93 (2010).
13. Uniform bounds from proofs in nonlinear ergodic and fixed point theory. Abstract of Papers Presented to the Amer. Math. Soc. vol. 32, no. 1, issue 163, p.15 (2011).
14. Recent developments in proof mining: bounds from proofs in nonlinear ergodic theory. *Bull. Symbolic Logic* **19**, p.404 (2013).
15. Proof-theoretic metatheorems for metric structures and their relation to positive bounded logic (abstract). *Bull. Symbolic Logic* **23**, p.366 (2017).

## EDITING

1. Guest editor (together with C. Butz, S. Riis, G. Winskel) of: Special Issue, Proceedings of the Workshop on Proof Theory and Complexity PTAC'98, University of Aarhus, Denmark, August 3-7, 1998. *Ann. Pure Applied Logic* **104**, no. 1-3, vi+343 pp. (2000).
2. Guest editor (together with Y. Ershov, K. Keimel, A. Morozov) of: Special Issue, Proceedings of Joint Workshop DOMAINS VIII and Computability over Continuous Data Types, Novosibirsk, September 11-15, 2007, Russia. *Ann. Pure Applied Logic* **159**, issue 3, pp. 249-355 (2009).
3. Editor (together with F. Delon, P. Maddy, F. Stephan) of 'Logic Colloquium 2007'. *Lecture Notes in Logic*, Cambridge University Press, 281pp., 2010.
4. Editor (together with L. Libkin and R. de Queiroz) of 'Logic, Language, Information and Computation. 20th International Workshop, WoLLIC 2013, Darmstadt, Germany, August 2013, Proceedings. Springer LNCS **8071**, x+282pp., 2013.
5. Guest editor (together with K. Ambos-Spies, J. Bagaria, E. Casanovas) of: Special Issue, Selected papers from 'Logic Colloquium 2011', Barcelona, July 11-16, Spain. *Ann. Pure Applied Logic*. **164**, pp. 1177-1519 (2013).

6. Editor (together with R. de Queiroz and P. Barceló) of ‘Logic, Language, Information and Computation. 21st International Workshop, WoLLIC 2014, Valparaiso, Chile, September 2014, Proceedings. Springer LNCS **8652**, xviii+238pp., 2014.
7. Editor (together with S. Berardi and S. van Bakel) of ‘Proceedings Sixth International Workshop on Classical Logic and Computation (CL&C 2016), Porto June 23, 2016’. Electronic Proceedings in Theoretical Computer Science (EPTCS) vol. 213, 2016.
8. Editor (together with L. Libkin and R. de Queiroz) of Special Issue of ‘Journal of Computer and System Sciences’ **88**, 2017 (with selected papers from WoLLIC 2013).
9. Editor (together with P. Barceló and R. de Queiroz) of Special Issue of ‘Information & Computation’, vol. 255, Part 2, pp. 193-334, 2017 (with selected papers from WoLLIC 2014).

Talks given at conferences and other universities:

**I. Talks at Conferences:**

1. Colloquium Logicum, Kiel (Germany) 2.6.–4.6.88
2. Logic Colloquium 89 der Association for Symbolic Logic, Berlin (Germany) 24.7.–3.8.89
3. Meeting ‘Potential theory’, Bielefeld (Germany) 16.11.–17.11.90
4. Conference ‘Mathematical Logic’(invited talk), Oberwolfach (Germany) 16.12.–22.12.90
5. Conference ‘Mathematical Logic’ (invited talk), Oberwolfach (Germany) 12.4.–18.4.92
6. Logic Colloquium 92 of the Assoc. Symb. Logic, Veszprem (Hungaria) 9.8.–15.8.92
7. Invited plenary lecture at the Logic Colloquium 93 of the Assoc.for Symb. Logic in Keele (England), 20.7.–29.7.93
8. Invited talk at: Workshop on Applicative Theories, Bern (Switzerland) 18.–19.3.94
9. Logic Colloquium 94 der Assoc. Symb. Logic, Clermont–Ferrand (France), 21.–30.7.94
10. Conference ‘Mathematical Logic’(invited talk), Oberwolfach (Germany) 2.4.95–8.4.95
11. Invited special session talk at: Logic Colloquium 95 of the Assoc. Symb. Logic, Haifa (Israel), 9.08.–17.08.95
12. 10th International Congress of Logic, Methodology and Philosophy of Science, Florence (Italy), 19.08.–25.08.95
13. Invited talk at ‘Workshop on Applicative Theories, Explicit Mathematics, and Related Topics’, Bern (Switzerland) 19.06–21.06.96.
14. Invited plenary lecture at the Logic Colloquium 96 of the Assoc. for Symbolic Logic in San Sebastian (Spain), 09.07.–15.07.96.
15. Annual Meeting of the Association for Symbolic Logic, MIT, Cambridge, Massachusetts (USA), 22.03-25.03.97.
16. Workshop on Computation and Approximation, Birmingham (England), 11.09–13.09.97.
17. Conference ‘Mathematical Logic’ (invited talk), Oberwolfach (Germany) 18.01.-24.01.98.
18. Invited lecture at the 10th, biennial VIG Logic Meeting at UCLA, Los Angeles (USA), 30.01.-01.02.98.
19. Invited lecture at ‘Reflections: A Symposium Honoring Solomon Feferman on his 70th Birthday’, Stanford University (USA), 11.-13.12.98.
20. Talk at First St. Petersburg Days of Logic and Computability, St. Petersburg (Russia), 26.-29.5.99.

21. Invited section talk at ‘Annual Meeting of the German Mathematical Society’, University of Mainz (Germany), 05.-11.09.99.
22. Invited plenary lecture at the symposium ‘Constructivism in Mathematics and Computing’ in honor of Anne S. Troelstra on his 60th birthday, Noordwijkerhout (Netherlands), 16.-18.09.99.
23. Invited lecture at Workshop ‘Proof and Computation’ (in connection with a Memorial Colloquium for Kurt Schüttte), University of Munich (Germany), 05.-06.11.99.
24. Invited lecture at ‘Summer School on the Philosophy of Mathematics’, Roskilde (Denmark), 19.-23.06.2000.
25. Talk at ‘Fourth Workshop on Computability and Complexity in Analysis’ CCA-2000, Swansea (Wales), 17.-19.09.2000.
26. Talk at ‘Third international workshop on Implicit Computational Complexity-2001 (ICC’01)’, Aarhus, 20.-21.05.2001.
27. Invited lecture at ‘Tenth International Colloquium on Numerical Analysis and Computer Science with Applications’, Plovdiv (Bulgaria), 12-17, August 2001.
28. Invited lecture at ‘International conference on MATHEMATICAL LOGIC, ALGEBRA AND SET THEORY dedicated to the 100-th anniversary of P.S. Novikov’, Moscow, August 27-30, 2001
29. Invited talk in the special session ‘Proof Theory and the Foundations of Mathematics’ of the Meeting of the American Mathematical Society, Columbus, Ohio, 21.-23.09.2001.
30. Invited talk at Dagstuhl-Seminar on ‘Computability and Complexity in Analysis’, 11.11.-16.11.2001.
31. Invited talk at Conference ‘Mathematical Logic’, Oberwolfach, 07.-13.04.2002.
32. Invited lecture at Conference ‘Bounded Arithmetic and Complexity Classes’, Lisbon, 28.-29.06.2002.
33. Invited lecture at ‘Computability on the Continuum Seminar’, Kyoto, 13.12-15.12.2002
34. Invited talk at Dagstuhl-Seminar ‘Verification and Constructive Algebra’, 05.01-10.01.2003
35. Invited talk at ‘Workshop on Proof Theory and Algorithms’, Edinburgh, 23.-29.03.2003.
36. Invited talk at ‘Konferenz Gödel und KI’, Ev. Akademie Arnoldshain, Arnoldshain (Germany), 4.-6.04.2003
37. Invited plenary lecture at ‘2003 Annual Meeting of the Association for Symbolic Logic’, Chicago, 1.-4.06.2003.
38. Invited talk at ‘International Conference on Fixed Point Theory and Applications’, Valencia (Spain), 13.-19.07.2003.
39. Invited lecture at ‘12th. International Congress of Logic Methodology and Philosophy of Science’ (section: Logic), Oviedo (Spain), 7.-13.08.2003.

40. Invited lecture at special symposium on ‘The unusual effectiveness of logic in computer science’ as part of LMPS 2003, Oviedo (Spain), 2003.
41. Invited series of lectures at ‘Fall school of the Logic Seminar of the Mathematical Institute of the Czech Academy of Sciences, Pec p. Snezkou, 14.-20.09.2003.
42. Invited plenary lecture at ‘Colloquium Logicum’ (Biannual Meeting of the German Society for Mathematical Logic (DVMLG) September 17 - 19, Heidelberg, 2004) held in connection with ‘Jahrestagung der Deutschen Mathematiker-Vereinigung’, Heidelberg 12.-17.09.2004.
43. Invited series of lectures at workshop at Kyushu University, Kyushu, Japan, 22.-26.11.2004.
44. Invited plenary lecture at UCLA Logic Conference, Los Angeles, USA, 3.-6.02.2005.
45. Invited series of lectures (3 times 60 min) at Conference ‘Mathematical Logic: Proof Theory, Type Theory and Constructive Mathematics’, Oberwolfach, 20.-26.03.2005.
46. Invited plenary lecture at Conference ‘CiE 2005: New Computational Paradigms’, Amsterdam, June 8-12, 2005.
47. Plenary lecture at ‘7th International Conference on Fixed Point Theory and Applications’, Guanajuato (Mexico), July 17-23, 2005.
48. Invited series of lectures (4 times 60 min) at Conference ‘MAP 2006’, January 2006, Castro Urdiales, Spain, 9.1.-13.1.2006.
49. Invited plenary lecture at ‘Horizons of Truth. Logics, Foundations of Mathematics, and the Quest for Understanding the Nature of Knowledge. Gödel Centenary 2006. International Symposium Celebrating the 100th Birthday of Kurt Gödel’, Vienna, 27.-29.4.2006.
50. Invited tutorial (2 times 60 min) and invited plenary lecture (75 min) at ‘WoLLIC’2006, 13th Workshop on Logic, Language, Information and Computation’, July 18-21, 2006, Stanford, California, USA.
51. Invited talk at ‘Minisymposium: The use of Proof Theory in Mathematics’ as part of DMV Meeting, Bonn 17.9.-23.9.2006.
52. Invited plenary lecture at: 2006-07 ‘Winter Meeting of the Association for Symbolic Logic (ASL)’, January 7-8, 2007, New Orleans, USA.
53. Invited talk at ‘AMS-ASL Special Session on Logical Methods in Computational Mathematics’ as part of the 113th Annual Meeting of the American Mathematical Society. January 5-8, 2007, New Orleans, USA.
54. Talk at ‘Conference on Methods of Proof Theory in Mathematics’, Max Planck Institute Bonn, June 3-10, 2007, Bonn.
55. Talk at ‘Joint Workshop DOMAINS VIII and Computability over Continuous Data Types’, Novosibirsk, September 11-15, 2007, Russia.
56. Invited Lecture at ‘Workshop Deduction in Semantics’, Stuttgart, 10.-12.12.2007.

57. Invited Lecture at Herbrand Centenary, Ecole normale supérieure (ENS), Paris, Feb. 15, 2008.
58. Invited Lecture at: MAP Conference, Aug. 25-29, 2008, Abdus Salam International Centre for Theoretical Physics, Trieste.
59. Invited Lecture at: British Logic Colloquium, Nottingham (UK), September 4-6, 2008.
60. Invited Lecture at: Workshop: Computability, Reverse Mathematics, Combinatorics. Banff International Research Station, Banff (Canada), December 7-12, 2008.
61. Invited tutorial (3 times 60 min) at ASL Logic Colloquium'09, 31.7.-5.8.2009, Sofia (Bulgaria).
62. Invited Plenary Lecture at Conference 'Logic and Mathematics', University of York (UK), August 3-7, 2009.
63. Invited Plenary Lecture at: Maltsev Meeting 2009, Novosibirsk (Russia), August 24-28, 2009.
64. Invited talk at: Symposium for Mogens Nielsen's 60th birthday: an Aarhus celebration, Aarhus University, Aarhus, Denmark, October 3-4, 2009.
65. Invited Lecture at: Workshop on Ergodic Theory, Queen Mary, University of London London UK, October 30, 2009.
66. Invited Lecture at: Workshop "Reverse Mathematics: Foundations and Applications", University of Chicago, November 6-8, 2009.
67. Invited tutorial (2 times 60 min) at 'Colloquium PhD's in Logic II'. Tilburg University, The Netherlands, February 18-19, 2010.
68. Invited key note lecture at 'Third International Workshop on Classical Logic and Computation (CL&C 2010)', August, 21-22, Brno, Czech Republic, 2010.
69. Invited Lecture at: Collegium Logicum: Proofs and Structures, Paris, November 8-10, 2010.
70. Talk at AMS-ASL Special Session on Logic and Analysis. Joint Mathematics Meetings, New Orleans, LA, January 6-9, 2011.
71. Invited lecture at: "New Trends in Logic" Conference honoring the Winners of the Kurt Gödel Research Prize Fellowships 2008 and 2011. Austrian Academy of Sciences, Vienna, April 28-29, 2011.
72. Invited lecture at 'Workshop on Ramsey Theory in Logic, Combinatorics and Complexity (RaTLoCC 2011)', May 22-27, Bertinoro (Italy), 2011.
73. Invited lecture at 'Workshop on Proof Theory and Computability Theory', Tokyo, Feb. 20-23, 2012.
74. Invited plenary lecture at '15th Latin American Symposium on Mathematical Logic', Bogota, Colombia, June 4-8, 2012.

75. Invited keynote lecture at ‘10th International Conference of Fixed Point Theory and its Applications’, July 9-15, 2012, Cluj-Napoca, Romania.
76. Invited series of lectures at ‘Third MALOA Training Workshop’, University of Oxford, Mathematical Institute, Aug.26 - Sep.1, 2012.
77. Invited lecture at ‘International Workshop on Fixed Point Theory and Applications’, Istanbul, Turkey, October 11-13, 2012.
78. Invited talk at ‘3rd Workshop on Proof Theory and Rewriting’, Kanazawa (Japan), March 4-8, 2013.
79. Invited talk at Types 2013, Toulouse, April 23-26, 2013.
80. Invited talk at ‘Workshop Computer Science, Philosophy, Mathematics’ Toulouse, April 26, 2013.
81. Invited talk at ‘Proof Theory in Lisbon’, July 19, Lisbon, 2013
82. Invited talk at workshop in connection with the honory doctorate for Prof. Dr. Harvey M. Friedman, Gent University, September 4-5, 2013.
83. Invited talk at ‘Humboldt-Kolleg Proof’, Bern, Sept. 9-13, 2013.
84. Invited talk at ‘Royal Society International Scientific Seminar: Computational Interpretations of Mathematical Theorems’, Nov. 25-26, 2013, Kavli Royal Society International Centre, Chicheley Hall, Chicheley, UK.
85. Talk at IRTG 1529 (‘Mathematical Fluid Dynamics’) Winter Seminar. La Clusaz, France, Jan. 27-31, 2014.
86. Invited talk at IRTG 1529 (‘Mathematical Fluid Dynamics’) Kickoff Meeting, Waseda University, Tokyo, Japan, Jun. 17-18, 2014.
87. Invited talk at ‘Oberwolfach Workshop on Mathematical Logic: Proof Theory, Constructive Mathematics. Mathematical Research Institute Oberwolfach, November 16-22, 2014.
88. Invited talk at ‘Workshop on Proof Theory’, Utrecht, April 16-18, 2015.
89. Invited talk at ‘11th International Conference on Fixed Point Theory and Applications’, July 20-24, 2015, Galatasaray University, Istanbul, Turkey.
90. Invited talk at ‘Measuring the Complexity of Computational Content: Weihrauch Reducibility and Reverse Analysis’, Dagstuhl Seminar, September 20.-25, 2015.
91. Invited talk at ‘12th International Seminar on Optimization and Related Areas’, October 5-9, 2015, Lima, Peru.
92. Invited plenary lecture at ‘Workshop on New Challenges in Reverse Mathematics’, January 3-16, 2016, NUS, Singapore.
93. Invited course (2 times 60min) at ‘PhDs in Logic VIII’, Darmstadt, May 9-11, 2016.
94. Talks at ASL Annual Meeting, Storrs, CT, USA, May 23-16, 2016.

95. Invited keynote lecture at workshop ‘Intuitionism, Computation, and Proof: Selected themes from the research of G. Kreisel’, June 10-11, 2016, IHPST, Paris.
96. Invited course (4 times 60min) at ‘Hilbert Bernays Summer School on Logic and Computation 2016’, July 25-29, 2016, U Göttingen.
97. Invited talk at ‘Algorithmic Randomness Interacts with Analysis and Ergodic Theory’, December 4-9, 2016, CMO, Oaxaca, Mexico.
98. Invited talk at Dagstuhl Seminar on Computability, Dagstuhl, Feb 19-24, 2017.
99. Invited lecture at ‘Proof Theory Afternoon’, University of Chieti-Pescara, April 11, 2017.
100. Talk at ‘12th International Conference on Fixed Point Theory and its Applications’. July, 24-28, 2017, Newcastle, New South Wales, Australia.
101. Invited talk at Minisymposium ‘Applied Proof Theory and the Computational Content of Mathematics’ (as part of the 19th MG Congress and Annual DMV Meeting). Salzburg, September 14, 2017.
102. Invited course of lectures at Autumn School ‘Proof and Computation’, Sep. 23-26, 2017, Herrsching, Germany.
103. Scheduled: Invited lecture at Workshop ‘Computational approaches to mathematics and its foundations’, LMU Munich, April 12-13, 2018.
104. Scheduled: Invited course of lectures at ‘Summer School on Types, Sets and Constructions’, HIM Bonn, May 3-9, 2018.
105. Scheduled: Invited special session talk at ‘ASL 2018 North American Annual Meeting’. May 16-19, 2018, Macomb (IL), USA.
106. Scheduled: Invited Lecture (section: Logic and Foundation) at ICM 2018, August 1-9, Rio de Janeiro, Brazil, 2018.
107. Scheduled: Invited Lecture at ‘Conference on Mathematical Logic’. Niteroi, Brazil, Aug 10-11, 2018
108. Scheduled: Invited Lecture at conference at ‘Georg Kreisel Institut für Wissenschaftstheorie’. Salzburg, August 13-14, 2018.

## II. Colloquium Talks, Guest Lectures and Seminar Talks:

1. Utrecht, 7.12.90 (invited by Professors A.S. Troelstra and D. van Dalen).
2. Vienna, 11.5.92 (invited by the Kurt Gödel–Society).
3. Lisbon, 20.11.–25.11.95 (series of lectures invited by Professor F. Ferreira).
4. Pittsburgh, 1.2.96 (invited by the Philosophy department of Carnegie Mellon University).
5. Aarhus, 28.11.96 (Invited talk at BRICS, Dept. of Computer Science, University Aarhus, Denmark).

6. Chicago, 16.05.97 (invited by Professors J. Baldwin and W.A. Howard, University of Illinois at Chicago).
7. Darmstadt, 5.12.97: Talk at TU Darmstadt (invited by Professor K. Keimel).
8. Stanford, 3.2.98: Logic Seminar Talk at Stanford University (invited by Professor S. Feferman).
9. Bern, 18.-25.10.98: Colloquium and seminar talks at Institute of Computer Science and Applied Mathematics, University of Bern (invited by Professor G. Jäger).
10. Tübingen, 27.10.98: Colloquium talk at 'Wilhelm-Schickard-Institut für Informatik', University of Tübingen (invited by Prof. Dr. P. Schröder-Heister and PD Dr. L. Gordeew).
11. Darmstadt, 2.11.99: Guest Lecture at Technical University of Darmstadt (invited by the department of mathematics).
12. Oslo, 15.11.-21.11.99, Logic Seminar Talk, Department of Mathematics, University of Oslo (invited by Prof.Dr. Dag Normann).
13. Kobe, 22.11.2000, Logic Seminar Talk (invited by Professor Susumu Hayashi).
14. Kyoto, 23.11.2000, Logic Seminar Talk (invited by Professors Mariko Yasugi and Susumu Hayashi).
15. Copenhagen, 04.12.2000, Seminar Talk at Dept. of Computer Science, University of Copenhagen (invited by Professor Neil Jones).
16. Frankfurt, 09.07.-15.07.2001, Colloquium and Seminar Talk, Dept. of Mathematics, J.W. Goethe-Universität Frankfurt.
17. Philadelphia, 19.09.2001, Seminar talk, Dept. of Computer Science, University of Pennsylvania, Philadelphia (invited by Professor Andre Scedrov).
18. Pittsburgh, 24.09.2001, Joint Logic/Mathematics Colloquium talk, Departments of Mathematics and Philosophy, Carnegie Mellon University, Pittsburgh (invited by Professors Jeremy Avigad, Dana Scott and Wilfried Sieg).
19. Cambridge: 02.11.2001, Logic and Semantics Seminar Talk, Computer Laboratory, University of Cambridge, UK (invited by Dr. Marcelo Fiore).
20. Frankfurt, 12.04.2002, Colloquium talk, Department of Philosophy, J.W.Goethe-Universität Frankfurt (invited by Professor W.K. Essler).
21. Darmstadt, 5.10.2002, Talk, Department of Mathematics, Technical University of Darmstadt.
22. Munich, 10.01.2003, Colloquium talk, Department of Mathematics, LMU Munich.
23. Munich, 13.01.2003, Seminar Talk, Department of Mathematics, LMU Munich (invited by Professor H. Schwichtenberg).
24. Odense, 5.3.2003, Computer Science Colloquium, Department of Mathematics and Computer Science, University of Southern Denmark.

25. Copenhagen, 23.05.2003, Talk at IT-University of Copenhagen.
26. Darmstadt, 14.11.2003, Talk at Department of Mathematics, TU Darmstadt.
27. Amsterdam, 7.9.2004, Colloquium Talk, ILLC, University of Amsterdam.
28. Kyoto, 21.11.2004, Seminar Talk at Kyoto Sangyo University, Japan.
29. Darmstadt, 19.05.2005, Lecture in 'Katholische Hochschulgemeinde Darmstadt'.
30. Valencia, 11.10.2005, Talk, Department of Mathematics, University of Valencia, Spain.
31. Sevilla, 14.10.2005, Talk, Department of Mathematics, University of Sevilla, Spain.
32. Bonn, 8.12.2005, Talk at Max Planck Institut für Mathematik, Bonn, Germany.
33. Linz 19.10.2006, Computer Algebra Seminar Talk at 'Research Institute for Symbolic Computation (RISC)', University of Linz, Austria.
34. Bonn 7.3.2007, Seminar Talk at Max Planck Institute for Mathematics, Bonn.
35. Bonn 13.4.2007, Colloquiums Talk, Mathematical Institute, University of Bonn.
36. Stanford 26.2.08, Talk in Logic Seminar, Stanford University.
37. Berkeley, 29.2.08, Talk in the Berkeley Logic Colloquium, University of California at Berkeley.
38. Stanford 6.3.08, Talk in the Department of Mathematics Colloquium, Stanford University.
39. Stanford, 7.3.08, Talk in the Department of Philosophy Colloquium, Stanford University.
40. Calgary, 5.12.08, Talk at Calgary Peripatetic Research Group in Logic and Category Theory, Department of Mathematics, University of Calgary, Canada.
41. Lyon, 12.3.09, Talk at CHOCO Seminar, ENS, France.
42. Lisbon, 15.9.09, Talk in the Mathematical Colloquium, Department of Mathematics, University of Lisbon, Portugal.
43. Bucharest, 1.4.11, Seminar Talk, Institute of Mathematics "Simion Stoilow" of the Romanian Academy, Bucharest, Romania.
44. Bucharest, 6.4.11, Colloquium Talk, Institute of Mathematics "Simion Stoilow" of the Romanian Academy, Bucharest, Romania.
45. Freiburg, 18.5.11, Logic Seminar Talk, Department of Mathematics, Universität Freiburg.
46. Pittsburgh, 23.6.11, Logic Seminar Talk, Carnegie Mellon University.
47. Philadelphia, 29.6.11, Talk at Logic and Computation Seminar, University of Pennsylvania.
48. New York City, 5.7.11, Talk at New York Logic Colloquium and Computational Logic Seminar, Graduate Center of CUNY.

49. Paris, 19.3.13, Talk at PPS Seminar, Université Paris Diderot.
50. Bonn, 23.9.13, Seminar Lecture at HIM Trimester on 'Universality and Homogeneity', Hausdorff Research Institute, University of Bonn.
51. Munich, 28.11.13, Mathematical Colloquium Talk, LMU Munich.
52. Sendai, 16.06.14, Mathematical Colloquium Talks, Tohoku University.
53. Seville 06.05.15, Mathematical Colloquium Lecture, University of Seville.
54. Seville 08.03.17, Mathematical Colloquium Lecture, University of Seville.

Prof. Dr. Ulrich Kohlenbach

### **Supervision of graduate students**

- (i) Klaus Frovin Joergensen (Roskilde), Master Degree 2001 (jointly supervised with Stig Andur Pedersen).
- (ii) Dan Hernest (Aarhus/BRICS), Master Degree 2001.
- (iii) Paulo Oliva (Aarhus/BRICS), ‘Qualifying Exam’ 2001. PhD: Sep 26, 2003. Title of PhD thesis: Proof Mining in Subsystems of Analysis.
- (iv) Michael Toftdal (Aarhus), Master Degree: June 2004.
- (v) Branimir Lambov (Aarhus/BRICS and Darmstadt), PhD (Aarhus) March 2006 (supervised together with Mogens Nielsen after I left Aarhus). Topics in the Theory and Practice of Computable Analysis.
- (vi) Philipp Gerhardy (Aarhus/BRICS and Darmstadt), Master Degree: Jan 2003, PhD (Aarhus) May 2006 (supervised together with Mogens Nielsen after I left Aarhus). Applications of Proof Interpretations.
- (vii) Eyvind Briseid (Darmstadt), PhD (Darmstadt), October 2009.
- (viii) Jaime Gaspar (Darmstadt), PhD (Darmstadt), December 2011.
- (ix) Pavol Safarik (Darmstadt). Diplom April 2008, PhD (Darmstadt), December 2013.
- (x) Alexander Kreuzer (Darmstadt). Diplom February 2009, PhD (Darmstadt), April 2012.
- (xi) Daniel Körnlein (Darmstadt). PhD (Darmstadt), April 2016.
- (xii) Katharina Schade. Master Thesis 2012.
- (xiii) Daniel Günzel. Master Thesis 2013.
- (xiv) Angeliki Koutsoukou-Argyaki. PhD 2016.
- (xv) Florian Steinberg. PhD 2016 (jointly supervised with Martin Ziegler, since 2015 at KAIST).
- (xvi) Michael Lettmann. Master Thesis 2014.
- (xvii) Eike Neumann. Master Thesis 2014.