

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) since 2008.

PROFESSIONAL ACTIVITIES and MEMBERSHIPS:

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

Speaker of ‘Fachgruppe Logik der DMV’ (since 2009)

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

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

Member of American Mathematical Society (AMS)

Member of Deutsche Mathematiker Vereinigung (DMV)

Member of Danish Mathematical Society

Member of Deutscher Hochschulverband

EDITORIAL BOARDS:

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

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

Editorial Board Member ‘Mathematical Logic Quarterly’ (from 1.1.2006 on).

Editorial Board Member ‘Computability’ (from 2011 on).

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

Refereeing for numerous proceedings and the following journals

- Transactions of the American Mathematical Society,
- Fundamenta Mathematicae,
- 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.

Reviewer for

- Mathematical Reviews (until 2006)
- The Journal and Bulletin of Symbolic Logic,
- 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).

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 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.

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.

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 Π_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-Shafir. *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. Gödel functional interpretation and weak compactness. To appear in: *Ann. Pure Applied Logic*.
42. (With Daniel Körnlein) Effective rates of convergence for Lipschitzian pseudocontractive mappings in general Banach spaces. *Nonlinear Analysis* **74**, pp. 5253-5267 (2011).
43. A note on the monotone functional interpretation. *Math. Logic Quart.* **57**, pp. 611-614 (2011).
44. On the asymptotic behavior of odd operators. *J. Math. Anal. Appl.* **382**, pp. 615-620 (2011).
45. A uniform quantitative form of sequential weak compactness and Baillon's nonlinear ergodic theorem. To appear in: *Communications in Contemporary Mathematics*.
46. (with Laurentiu Leustean) On the computational content of convergence proofs via Banach limits. To appear in: *Philosophical Transactions of the Royal Society A*.

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

47. 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).
48. 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**.
49. 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).
50. (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):

51. 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).
52. 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).
53. 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).
54. Gödel's functional ('Dialectica') interpretation today. Invited book chapter for the Gödel Centenary. In: Baaz, M. et al. (eds.), *Kurt Gdel and the Foundations of Mathematics. Horizons of Truth*. Cambridge University Press, New York 2011. Reprinted in: *dialectica* Vol. 62, no. 2, pp. 223-267 (2008).
55. 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:

56. 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).
57. (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).

58. Applied Foundations: proof mining in analysis. Newsletter of the Danish Mathematical Society ('Matilde') **13**, pp. 7-9 (2002).
59. (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).
60. Interview on the Philosophy of Mathematics. Hendricks, V.F., Leitgeb, H., (eds.), Philosophy of Mathematics: 5 Questions, pp. 183-190, Automatic Press/VIP (2008).

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).

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.

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. Scheduled: Invited lecture at 'Workshop on Proof Theory and Computability Theory', Tokyo, Feb. 20-23, 2012.
74. Scheduled: Invited plenary lecture at '15th Latin American Symposium on Mathematical Logic', Bogota, Colombia, June 4-8, 2012.

75. Scheduled: Invited keynote lecture at ‘10th International Conference of Fixed Point Theory and its Applications’, July 9-15, 2012, Cluj-Napoca, Romania.

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.

Teaching record:

I. Courses

1. Summer term 1993 (April–July): Course ‘Einführung in die Analyse von Beweisen’ (Introduction into the analysis of proofs), University of Frankfurt.
2. Fall term 1993/94 (October–February): Course ‘Analyse von Beweisen II’ (Analysis of proofs II), University of Frankfurt.
3. Fall term 1995/96 (October–February): Course ‘Einführung in die deskriptive Mengenlehre’ (Introduction to descriptive set theory), University of Frankfurt.
4. Summer term 1996 (April–July): Course ‘Einführung in die Rekursionstheorie’ (Introduction to recursion theory), University of Frankfurt.
5. Fall term 1996: Calculus (at Department of Mathematics, University of Michigan, Ann Arbor).
6. Winter term 1997: Calculus (at Department of Mathematics, University of Michigan, Ann Arbor).
7. Spring term 98: Course ‘Proof Interpretations’ (at BRICS, Department of Computer Science, University of Aarhus, Denmark).
8. Fall term 98: Course ‘Logic for Computer Science’ (at BRICS, Department of Computer Science, University of Aarhus, Denmark).
9. Fall term 99: Logic course for both 2.part and PhD students (Aarhus).
10. Spring term 2000: Course ‘Computability Theory’ (Aarhus).
11. Fall term 2000: Course ‘Introduction to Logic’ (Aarhus).
12. Spring term 2001: Undergraduate course ‘Logic and Models’ (together with Mogens Nielsen) (Aarhus).
13. Fall term 2001: Proof Interpretations and Computational Analysis (Aarhus).
14. Spring term, 2002: Introduction to Computability Theory (Aarhus).
15. Fall term, 2002: Logic and Proof Theory (Aarhus).
16. Spring term, 2003: Generalized Computability Theory (Aarhus).
17. Fall term, 2003: Introduction to Logic, Introduction to Constructive Reasoning (Aarhus).
18. First half of spring term 2004: Introduction to Computability Theory (Aarhus).

19. Spring term 2004 at Darmstadt University of Technology: Course ‘Applied Proof Theory: Proof Mining’ (4+2). Seminar ‘Introduction to Reverse Mathematics’ (2+0).
20. Winter term 2004/05 at Darmstadt University of Technology: Course ‘Analysis I’ (MSC,4+2+2), Seminar: Logic and Fixed Point Theory (2+0).
21. Summer term 2005 at Darmstadt: Course ‘Analysis II’ (MCS,4+2+2), Course ‘Applied Proof Theory’ (2+1). Proseminar: Nonstandard Analysis (2+0).
22. Winter term 2005/06 at Darmstadt: Course ‘Analysis I’ (MCS, 4+2+2) and Course ‘Computability Theory’ (2+1). Seminar: Proof Theory (2+0).
23. Summer term 2006: Lecture: ‘Introduction to Logic’ (4+2), Proseminar II (2+0), Seminar on Proof Theory (2+0), Seminar ‘What is a proof’ (together with Prof. Dr. Nordmann, Department of Philosophy (2+0).
24. Winter term 2006/07 at Darmstadt: Course ‘Applied Proof Theory’ (4+2), Seminar on Proof Theory.
25. Winter term 2007/08 at Darmstadt: Course ‘Formal Foundations of Computer Science’ (2+1), Course ‘Computability Theory’ (2+1), Seminar on Proof Theory.
26. Summer term 2008 at Darmstadt: Seminar on Proof Theory (2+1), Course: Introduction to Proof Theory (2+1).
27. Winter term 2008/09 at Darmstadt: Course ‘Formal Foundations for Computer Science I’ (2+1), Proseminar.
28. Summer term 2009 at Darmstadt: Courses ‘Formal Foundations for Computer Science II’ (2+1), ‘Introduction to Logic’ (4+2).
29. Winter term 2009/10 at Darmstadt: Courses ‘Analysis I’ (4+2+2) and ‘Applied Proof Theory’ (2+1).
30. Summer term 2010 at Darmstadt: Course ‘Analysis II’ (4+2+2) and ‘Seminar on Proof Theory’.
31. Winter term 2010/11 at Darmstadt: Course ‘Applied Proof Theory’ (4+2) and ‘Proseminar on Analysis and Computability’.
32. Winter term 2011/12 at Darmstadt: Course ‘Introduction to Mathematical Logic’ (4+2) and ‘Introduction to Computability Theory’ (2+1).

II. Courses held jointly with other departments of the University of Frankfurt

- (i) Term fall 86/87: Seminar ‘Logik für Linguisten’ (Logic for linguists) (together with Prof. Dr. H. Leuninger, Department of German).
- (ii) Term summer 91: Seminar ‘Mengenlehre’ (Set Theory) (together with Prof. Dr. W.K. Essler, Department of Philosophy).
- (iii) Term summer 96: Seminar ‘Extensionale Semantik’ (Extensional Semantics) (together with Prof. Dr. W.K. Essler, Department of Philosophy).

III. 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 student since April 2008.
- (x) Alexander Kreuzer (Darmstadt). Diplom February 2009, PhD student since February 2009.
- (xi) Daniel Körnlein (Darmstadt). PhD student since July 2011.