

# CURRICULUM VITÆ

*Steffen Lempp*

## Personal Data

Office address: Department of Mathematics  
University of Wisconsin  
480 Lincoln Drive  
Madison, WI 53706-1388  
Phone: (608) 263-1975  
Fax: (608) 263-8891  
Email: [lempp@math.wisc.edu](mailto:lempp@math.wisc.edu)  
WWW home page: <http://www.math.wisc.edu/~lempp>  
Citizenships: German and American  
Marital Status: Married, three adult children and two grandchildren

## Education

1978-81: Study at the University of Karlsruhe and the University of Bonn, Germany  
1981-82: College student-at-large at the University of Chicago on a Fulbright scholarship  
1982-86: Graduate study at the University of Chicago  
1983: M.S., University of Chicago  
1986: Ph.D., University of Chicago (advisor: Robert I. Soare)

## Employment

1986-88: Gibbs Instructor, Yale University  
1988-92: Assistant Professor, University of Wisconsin–Madison  
1992-96: Associate Professor, University of Wisconsin–Madison  
Since 1996: Professor, University of Wisconsin–Madison

## Awards and Grants

1987-2010: Individual NSF Grants  
1988-96: U.S.-German Binational NSF Grant with Klaus Ambos-Spies, Manuel Lerman, Robert I. Soare, and Theodore A. Slaman  
Spring 1989: Research Fellowship at the University of Heidelberg, Germany  
1989-90: Postdoctoral Fellowship at the Mathematical Sciences Research Institute, Berkeley, California  
1991-95: U.S.-New Zealand Binational NSF Grant with Rodney G. Downey, Richard A. Shore, and Michael Stob  
1991-97: NSF conference grant for the Southern Wisconsin Logic Colloquium (with ten other Wisconsin logicians)  
Spring 1996: Sabbatical at the University of Leeds, England, with partial support by the British Engineering and Physical Sciences Research Council  
Summer 1997: NSF conference grant for a recursion theory workshop in Kazan, Russia  
Summer 1998: Two-month research visit in Siena, Italy (partially funded by the Italian Consiglio Nazionale delle Ricerche (CNR))

- 2000-02: Vilas Research Award (University of Wisconsin–Madison)
- 2000-05: Binational NSF Grant with Russia and Kazakhstan (including Marat Arslanov, Serikzhan Badaev, Doug Cenzer, Sergey Goncharov, Valentina Harizanov, Julia Knight, Andrei Morozov, André Nies, Mikhail Peretyat’kin, and Reed Solomon)
- 2002-03: Mercator Guest Professorship, University of Heidelberg (funded by the Deutsche Forschungsgemeinschaft)
- Summer 2005: Member, Institute for Mathematical Sciences, National University of Singapore
- 2006-21: Binational NSF Grants with Russia and Kazakhstan (including Serikzhan Badaev, Wesley Calvert, Rumén Dimitrov, Damir Dzhabfarov, Andrey Frolov, Sergey Goncharov, Valentina Harizanov, Iskander Kalimullin, Julia Knight, Karen Lange, Charles McCoy, Joseph Miller, Russell Miller, Antonio Montalbán, Andrey Morozov, Vadim Puzarenko, Alexandra Soskova, Mariya Soskova, and Stefan Vatev, currently DMS-1600625)
- 2008-10: Grant # 13407 by the John Templeton Foundation entitled “Exploring the Infinite by Finitary Means”
- Fall 2009: Visiting Scholar, Victoria University of Wellington, New Zealand
- June 2010: Visiting Scholar, Kazakh National University, Almaty
- 2011-16: AMS-Simons Collaboration Grant # 209087
- February 2012: Visiting Fellow, Newton Institute, Cambridge, England
- 2012-15: Mathematics Consultant, NSF grant DRL-1220623 in mathematics education on “The Role and Use of Examples in Learning to Prove”, UW-Madison and New York University
- 2015-17: Co-principal investigator, Kazakh government research grant entitled “Equivalence relations, preordered structures, and algorithmic reducibilities on them, as a mathematical model of databases”, with Uri Andrews, Serikzhan A. Badaev, Timur I. Bakibayev, Andrea Sorbi, and others
- January 2016: Participant, Workshop on “New Challenges in Reverse Mathematics”, Institute for Mathematical Sciences, Singapore, January 2016
- 2016-19: Individual NSF grant DMS-1600228 (PI Uri Andrews)
- 2016-17: Visiting Professor, National University of Singapore
- 2019-24: AMS-Simons Collaboration Grant # 626304

### **Affiliations**

1. American Mathematical Society (AMS)
2. Association for Symbolic Logic (ASL)
3. Deutsche Mathematiker-Vereinigung (DMV)
4. Deutsche Vereinigung für Mathematische Logik und für Grundlagen der Exakten Wissenschaften (DVMLG)
5. Computability in Europe (CiE)

### **Research Publications**

1. Topics in recursively enumerable sets and degrees, Ph.D. Thesis, University of Chicago, 1986, 95 pages.

2. Hyperarithmetical index sets in recursion theory, *Transactions of the American Mathematical Society*, Vol. 303, 1987, pp. 559-583.
3. A high strongly noncappable degree, *Journal of Symbolic Logic*, Vol. 53, 1988, pp. 174-187.
4. A limit on relative genericity in the recursively enumerable degrees, with Theodore A. Slaman, *Journal of Symbolic Logic*, Vol. 54, 1989, pp. 376-395.
5. Weak density and cupping in the d.r.e. degrees, with S. Barry Cooper and Philip Watson, *Israel Journal of Mathematics*, Vol. 67, 1989, pp. 137-152.
6. Jumps of splittings of r.e. sets, with Michael Ingrassia, *Zeitschrift für mathematische Logik und Grundlagen der Mathematik*, Vol. 36, 1990, pp. 285-292.
7. Priority arguments using iterated trees of strategies, with Manuel Lerman, in: "Recursion Theory Week, Oberwolfach, 1989", K. Ambos-Spies, G.H. Müller, G.E. Sacks (eds.), *Springer Lecture Notes in Mathematics No. 1432*, Springer-Verlag, Berlin, 1990, pp. 277-296.
8. The d.r.e. degrees are not dense, with S. Barry Cooper, Leo Harrington, Alistair H. Lachlan, and Robert I. Soare, *Annals of Pure and Applied Logic*, Vol. 55, 1991, pp. 125-151; with Corrigendum, *Annals of Pure and Applied Logic*, Vol. 168, 2017, pp.2164-2165.
9. The existential theory of the poset of r.e. degrees with a predicate for single jump reducibility, with Manuel Lerman, *Journal of Symbolic Logic*, Vol. 57, 1992, pp. 1120-1130.
10. Highness and bounding minimal pairs, with Rodney G. Downey and Richard A. Shore, *Mathematical Logic Quarterly*, Vol. 39, 1993, pp. 475-491.
11. Minimal pair constructions and iterated trees of strategies, with Manuel Lerman and Frank Weber, in: "Logical Methods", J. Crossley, J. Remmel, R. Shore, M. Sweedler eds., *Birkhäuser*, Boston, 1993, pp. 512-554.
12. Lattice embeddings into the r.e. degrees preserving 0 and 1, with Klaus Ambos-Spies and Manuel Lerman, *Journal of the London Mathematical Society (2)*, Vol. 49, 1994, pp. 1-15.
13. Lattice embeddings into the r.e. degrees preserving 1, with Klaus Ambos-Spies and Manuel Lerman, in: "Logic and Philosophy of Science: Papers from the 9th International Congress of Logic, Methodology, and Philosophy of Science", D. Prawitz and D. Westerståhl eds., *Kluwer Academic Publishers*, Dordrecht, Boston, 1994, pp. 179-198.
14. There is no plus-capping degree, with Rodney G. Downey, *Archive for Mathematical Logic*, Vol. 33, 1994, pp. 109-119.
15. A general framework for priority arguments, with Manuel Lerman, *Bulletin of Symbolic Logic*, Vol. 1, 1995, pp. 189-201.
16. The undecidability of the  $\Pi_4$ -theory for the r.e. wtt- and Turing degrees, with André O. Nies, *Journal of Symbolic Logic*, Vol. 60, 1995, pp. 1118-1136.
17. Interpolating d.r.e. and REA degrees between r.e. degrees, with Marat M. Arslanov and Richard A. Shore, *Annals of Pure and Applied Logic*, Vol. 78, 1996, pp. 29-56.
18. An extended Lachlan Splitting Theorem, with Sui Yuefei, *Annals of Pure and Applied Logic*, Vol. 79, 1996, pp. 53-59.

19. The decidability of the existential theory of the poset of recursively enumerable degrees with jump relations, with Manuel Lerman, *Advances in Mathematics*, Vol. 120, 1996, pp. 1-142.
20. Decidability of the two-quantifier theory of the recursively enumerable weak truth-table degrees and other distributive upper semi-lattices, with Klaus Ambos-Spies, Peter A. Fejer, and Manuel Lerman, *Journal of Symbolic Logic*, Vol. 61, 1996, pp. 880-905.
21. Jumps of minimal degrees below  $\mathbf{0}'$ , with Rodney G. Downey and Richard A. Shore, *Journal of the London Mathematical Society*, Vol. 54, 1996, pp. 417-439.
22. Infinite versions of some problems from finite complexity theory, with Jeffrey L. Hirst, *Notre Dame Journal of Formal Logic*, Vol. 37, 1996, pp. 545-553.
23. On isolating r.e. and isolated d.r.e. degrees, with Marat M. Arslanov and Richard A. Shore, *Annals of Pure and Applied Logic*, Vol. 78, 1996, pp. 29-56.
24. Iterated trees of strategies and priority arguments, with Manuel Lerman, *Archive of Mathematical Logic*, Vol. 36, 1997, pp. 297-312.
25. The computational complexity of torsion-freeness of finitely presented groups, *Bulletin of the Australian Mathematical Society*, Vol. 56, 1997, pp. 273-277.
26. Contiguity and distributivity in the enumerable Turing degrees, with Rodney G. Downey, *Journal of Symbolic Logic*, Vol. 62, 1997, pp. 1215-1240; with Corrigendum, *Journal of Symbolic Logic*, Vol. 67, 2002, pp. 1579-1580.
27. A finite lattice without critical triple that cannot be embedded into the enumerable Turing degrees, with Manuel Lerman, *Annals of Pure and Applied Logic*, Vol. 87, 1997, pp. 167-185.
28. Decidability and undecidability in the enumerable Turing degrees, in: "Proceedings of the Sixth Asian Logic Conference, Beijing, China", C. T. Chong, Q. Feng, D. Ding, Q. Huang, M. Yasugi eds., World Scientific, Singapore University Press, Singapore, 1998, pp. 151-161.
29. The  $\Pi_3$ -theory of the enumerable Turing degrees is undecidable, with André O. Nies and Theodore A. Slaman, *Transactions of the American Mathematical Society*, Vol. 350, 1998, pp. 2719-2736.
30. Infima in the recursively enumerable wtt-degrees, with Richard Blaylock and Rodney G. Downey, *Notre Dame Journal of Formal Logic*, *Notre Dame Journal of Mathematics*, Vol. 38, 1997, pp. 406-419.
31. Initial segments of recursive linear orders, with Klaus Ambos-Spies and S. Barry Cooper, "Order", Vol. 14, 1998, pp. 101-105.
32. Randomness versus Completeness: On the Diagonalization Strength of Resource-Bounded Random Sets, with Klaus Ambos-Spies and Gunther Mainhardt, in: "Mathematical Foundations of Computer Science 1998 23rd International Symposium, MFCS '98, Proceedings" (L. Brim, J. Gruska, and J. Zlatuska, eds.) *Lecture Notes in Computer Science 1450*, Springer Verlag, 1998, pp. 465-473.
33. Constructive models of uncountably categorical theories, with Bernhard Herwig and Martin Ziegler, *Proceedings of the American Mathematical Society*, Vol. 127, 1999, pp. 3711-3719.

34. The proof-theoretic strength of the Dushnik-Miller Theorem for countable linear orders, with Rodney G. Downey, in: “Recursion Theory and Complexity: Proceedings of the Kazan ’97 Workshop, Kazan, July 14-19, 1997”, M. Arslanov, S. Lempp, eds., Walter de Gruyter, Berlin, New York, 1999, pp. 55-57.
35. A  $\Delta_2^0$  set with barely  $\Sigma_2^0$  degree, with Rodney G. Downey and Geoffrey LaForte, *Journal of Symbolic Logic*, Vol. 64, 1999, pp. 1700-1718.
36. Differences of computably enumerable sets, with André O. Nies, *Mathematical Logic Quarterly*, Vol. 46, 2000, pp. 555-561.
37. A  $\Delta_2^0$  set with no infinite low subset in either it or its complement, with Rodney G. Downey, Denis R. Hirschfeldt, and D. Reed Solomon, *Journal of Symbolic Logic*, Vol. 66, 2001, pp. 1371-1381.
38. On the filter of computably enumerable supersets of an  $r$ -maximal set, with André O. Nies and D. Reed Solomon, *Archive for Mathematical Logic*, Vol. 40, 2001, pp. 415-423.
39. Embedding finite lattices into the  $\Sigma_2^0$  enumeration degrees, with Andrea Sorbi, *Journal of Symbolic Logic*, Vol. 67, 2002, pp. 69-90.
40. Friedberg numberings of families of  $n$ -computably enumerable sets, with Sergey S. Goncharov and D. Reed Solomon, *Algebra and Logic*, Vol. 41, 2002, pp. 81-86.
41. Reverse mathematics of the Nielsen-Schreier Theorem, with Rodney G. Downey, Denis R. Hirschfeldt, and D. Reed Solomon, in “Proceedings of an International Conference on Mathematical Logic Honouring Ershov on his 60th Birthday and Mal’tsev on his 90th Birthday”, (eds. Goncharov et al.), Novosibirsk, 2002, pp. 59-71.
42. The Lindenbaum algebra of the theory of the class of all finite models, with Mikhail G. Peretyat’kin and D. Reed Solomon, *Journal of Mathematical Logic*, Vol. 2, 2002, pp. 145-225.
43. Group theoretic properties of the group of computable automorphisms of a countable dense linear order with Charles F. D. McCoy, Andrei S. Morozov, and D. Reed Solomon, “Order”, Vol. 19, 2002, pp. 343-364.
44. Trivial, strongly minimal theories are model complete after naming constants, with Sergey S. Goncharov, Valentina S. Harizanov, Michael C. Laskowski, and Charles F. D. McCoy, *Proceedings of the American Mathematical Society*, Vol. 131, 2003, pp. 3901-3912.
45. On self-embeddings of computable linear orders, with Charles F. D. McCoy, Andrei S. Morozov, and D. Reed Solomon, in “Computability and Models – Perspectives East and West” (proceedings of INTAS meeting in Heidelberg (January 2001)), Plenum, New York, 2003, pp. 259-265.
46. Computability-theoretic and proof-theoretic aspects of partial and linear orderings, with Rodney G. Downey, Denis R. Hirschfeldt, and D. Reed Solomon, *Israel Journal of Mathematics*, Vol. 138, 2003, pp. 271-289.
47. The computable dimension of ordered abelian groups, with Sergey S. Goncharov and D. Reed Solomon, *Advances in Mathematics*, Vol. 175, 2003, pp. 102-143.
48. Comparing DNR and WWKL, with Klaus Ambos-Spies, Bjørn Kjos-Hanssen, and Theodore A. Slaman, *Journal of Symbolic Logic*, Vol. 69, 2004, pp. 1089-1104.

49. Computable categoricity of trees of finite height, with Charles F. D. McCoy, Russell G. Miller, and D. Reed Solomon, *Journal of Symbolic Logic*, Vol. 70, 2005, pp. 151-215.
50. Computably enumerable algebras, their expansions, and isomorphisms, with Bakhadyr M. Khossainov and Theodore A. Slaman, *International Journal of Algebra and Computation*, Vol. 15, 2005, pp. 437-454.
51. On extensions of embeddings into the  $\Sigma_2^0$ -enumeration degrees, with Theodore A. Slaman and Andrea Sorbi, *Journal of Mathematical Logic*, Vol. 5, 2005, pp. 247-298.
52. Embedding finite lattices into the computably enumerable degrees - a status survey, with Manuel Lerman and D. Reed Solomon, in: "Logic Colloquium '02", eds. Zoé Chatzidakis, Peter Koepke, Wolfram Pohlers, *Lecture Notes in Logic*, Association for Symbolic Logic, La Jolla, Cal., 2006, pp. 206-229.
53. Filters on computable posets, with Carl B. Mummert, *Notre Dame Journal of Formal Logic*, Vol. 47, 2006, pp. 479-485.
54. The complexity of the index sets of  $\aleph_0$ -categorical theories and of Ehrenfeucht theories, with Theodore A. Slaman, in: "Advances in Logic (North Texas Logic Conference)", American Mathematical Society, Providence, R.I., 2007, pp. 43-47.
55. Ideals in computable rings, with Rodney G. Downey and Joseph R. Mileti, *Journal of Algebra*, Vol. 314, 2007, pp. 872-887.
56. Subspaces of computable vector spaces, with Rodney G. Downey, Denis R. Hirschfeldt, Asher M. Kach, Joseph R. Mileti, and Antonio Montalbán, *Journal of Algebra*, Vol. 314, 2007, pp. 888-894.
57. On the computability-theoretic complexity of trivial, strongly minimal models, with Bakhadyr M. Khossainov, Michael C. Laskowski, and D. Reed Solomon, *Proceedings of the American Mathematical Society*, Vol. 135, 2007, pp. 3711-3721.
58. Generating sets for the recursively enumerable Turing degrees, with Klaus Ambos-Spies and Theodore A. Slaman, in: "Computational Prospects of Infinity, Part II: Presented Talks", World Scientific Press, Singapore, 2008, pp. 1-22.
59. The strength of some combinatorial principles related to Ramsey's Theorem for pairs, with Denis R. Hirschfeldt, Carl G. Jockusch, Jr., Bjørn Kjos-Hanssen, and Theodore A. Slaman, in: "Computational Prospects of Infinity, Part II: Presented Talks", World Scientific Press, Singapore, 2008, pp. 143-161.
60. A decomposition of the Rogers semilattice of a family of d.c.e. sets, with Serikzhan A. Badaev, *Journal of Symbolic Logic*, Vol. 74, 2009, pp. 618-640.
61. Stability and posets, with Carl G. Jockusch, Jr., Bart Kastermans, Manuel Lerman, and D. Reed Solomon, *Journal of Symbolic Logic*, Vol. 74, 2009, pp. 693-711.
62. On computable self-embeddings of computable linear orderings, with Rodney G. Downey and Bart Kastermans, *Journal of Symbolic Logic*, Vol. 74, 2009, pp. 1352-1366.
63. On Downey's Conjecture, with Marat M. Arslanov and Iskander Sh. Kalimullin, *Journal of Symbolic Logic*, Vol. 75, 2010, pp. 401-441.
64. On the role of the Collection Principle for  $\Sigma_2^0$ -formulas in second-order reverse mathematics, with Chi Tat Chong and Yue Yang, *Proceedings of the American Mathematical Society*, Vol. 138, 2010, pp. 1093-1100.

65. Comparing notions of randomness, with Bart Kastermans, *Theoretical Computer Science*, Vol. 411, 2010, pp. 602-616.
66. On the complexity of the successivity relation in computable linear orderings, with Rodney G. Downey and Guohua Wu, *Journal of Mathematical Logic*, Vol. 10, 2010, pp. 83-99; with Corrigendum, *Journal of Mathematical Logic*, Vol. 17, paper 1792002. 4 pages.
67. Downward closure of depth in countable Boolean algebras, with Asher M. Kach, *Algebra Universalis*, Vol. 68, 2012, pp. 57-74.
68. Computable categoricity vs. relative computable categoricity, with Rodney G. Downey, Asher M. Kach, and Daniel D. Turetsky, *Fundamenta Mathematicae*, Vol. 221, 2013, pp. 129-159.
69. A survey of results on the d.c.e. and  $n$ -c.e. degrees, *Lobachevskii Journal of Mathematics*, Vol. 35, 2014, issue 4, pp. 313-316.
70. Universal computably enumerable equivalence relations, with Uri Andrews, Joseph S. Miller, Keng Meng Ng, Luca San Mauro, and Andrea Sorbi, *Journal of Symbolic Logic*, Vol. 79, 2014, pp. 60-88.
71. Lowness for effective Hausdorff dimension, with Joseph S. Miller, Keng Meng Ng, Daniel D. Turetsky, and Rebecca Weber, *Journal of Mathematical Logic*, Vol. 14, 2014, paper 1450011, 22 pages.
72. Random strings and truth table-degrees of Turing complete c.e. sets, with Mingzhong Cai, Rodney G. Downey, Rachel Epstein, and Joseph S. Miller, *Logical Methods in Computer Science*, Vol. 10, 2014, paper 3:15, 24 pages.
73. The complexity of computable categoricity, with Rodney G. Downey, Asher M. Kach, Andrew E. M. Lewis-Pye, Antonio Montalbán, and Daniel D. Turetsky, *Advances in Mathematics*, Vol. 268, 2015, pp. 423-466.
74. Computability and uncountable linear orders I: Computable categoricity, with Noam Greenberg, Asher M. Kach, and Daniel D. Turetsky, *Journal of Symbolic Logic*, Vol. 80, 2015, pp. 116-144.
75. Computability and uncountable linear orders II: Degree spectra, with Noam Greenberg, Asher M. Kach, and Daniel D. Turetsky, *Journal of Symbolic Logic*, Vol. 80, 2015, pp. 145-178.
76. On the existence of a strong minimal pair, with George Barmpalias, Mingzhong Cai, and Theodore A. Slaman, *Journal of Mathematical Logic*, Vol. 15, 2015, paper 1550003, 28 pages.
77. On the structure of the degrees of relative provability, with Uri Andrews, Mingzhong Cai, David E. Diamondstone, and Joseph S. Miller, *Israel Journal of Mathematics*, Vol. 207, 2015, pp. 449-478.
78. On Kalimullin pairs, with Mingzhong Cai, Joseph S. Miller, and Mariya I. Soskova, *Computability*, Vol. 5, 2016, pp. 111-126.
79. Defining totality in the enumeration degrees, with Mingzhong Cai, Hristo A. Ganchev, Joseph S. Miller, and Mariya I. Soskova, *Journal of the American Mathematical Society*, Vol. 29, 2016, pp. 1051-1067.

80. The complements of lower cones of degrees and the degree spectra of structures, with Uri Andrews, Mingzhong Cai, Iskander Sh. Kalimullin, Joseph S. Miller, and Antonio Montalbán, *Journal of Symbolic Logic*, Vol. 81, 2016, pp. 997-1006.
81. Asymptotic density, computable traceability, and 1-randomness, with Uri Andrews, Mingzhong Cai, David E. Diamondstone, and Carl G. Jockusch, Jr., *Fundamenta Mathematicae*, Vol. 234, 2016, pp. 41-53.
82. Nondensity of double bubbles in the d.c.e. degrees, with Uri Andrews, Rutger Kuyper, Mariya I. Soskova, and Mars M. Yamaleev, in: “Computability and Complexity (Essays Dedicated to Rodney G. Downey on the Occasion of His 60th Birthday)” (A. Day, M. Fellows, N. Greenberg, B. Khossainov, A. Melnikov, F. Rosamund, eds.), *Lecture Notes in Computer Science 10010*, Springer Verlag, 2017, pp. 547-562.
83. Theory spectra and classes of theories, with Uri Andrews, Mingzhong Cai, David E. Diamondstone, and Joseph S. Miller, *Transactions of the American Mathematical Society*, Vol. 369, 2017, pp. 6493-6510.
84. Interval dismantlable lattices, with Kira V. Adaricheva, Jennifer P. Hyndman, and James B. Nation, “Order”, Vol. 35, 2018, pp. 133-137.
85. On cototality and the skip operator in the enumeration degrees, with Uri Andrews, Hristo A. Ganchev, Rutger Kuyper, Joseph S. Miller, Alexandra A. Soskova, and Mariya I. Soskova, *Transactions of the American Mathematical Society*, Vol. 372, 2019, pp. 1631-1670.
86. Reductions between types of numberings, with Ian Herbert, Sanjay Jain, Manat Mustafa, and Frank Stephan, *Annals of Pure and Applied Logic*, Vol. 270, 2019, paper 102716, 25 pages.
87. On the order dimension of locally countable partial orderings, with Kojiro Higuchi, Dilip Raghavan, and Frank Stephan, *Proceedings of the American Mathematical Society*, Vol. 148, 2020, pp. 2823-2833.
88. Computable linear orders and products, with Andrey N. Frolov, Keng Meng Ng, and Guohua Wu, *Journal of Symbolic Logic*, to appear, 18 pages.
89. Building models of strongly minimal theories, with Uri Andrews and Noah D. Schweber, *Advances in Mathematics*, accepted for publication, 23 pages.
90. Fragments of the theory of the enumeration degrees, with Mariya I. Soskova and Theodore A. Slaman, *Advances in Mathematics*, accepted for publication, 32 pages.
91. The first-order theory of the computably enumerable equivalence relations in the uncountable setting, with Uri Andrews, Manat Mustafa and Noah D. Schweber, submitted for publication, 16 pages.
92. Computability and the symmetric difference operator, with Uri Andrews, Peter M. Gerdes, Joseph S. Miller, and Noah D. Schweber, submitted for publication, 22 pages.
93. Maximal towers and ultrafilter bases in computability theory, with André O. Nies, Joseph S. Miller, and Mariya I. Soskova, in preparation.
94. Spectra of computable models of strongly minimal disintegrated theories, with Uri Andrews, in preparation.
95. On one-point extensions in the  $\Sigma_2^0$ -enumeration degrees, with Uri Andrews, Keng Meng Ng, and Andrea Sorbi, in preparation.



96. Finite final segments of the d.c.e. degrees, with Yiqun Liu, Yong Liu, Keng Meng Ng, Cheng Peng, and Guohua Wu, in preparation.
97. Intervals of recursively enumerable degrees: Lattice embeddings and non- $\aleph_0$ -categoricity of the partial order, with Klaus Ambos-Spies and Robert I. Soare, in preparation.

### Invited Lectures

1. Annual Meeting of the Association for Symbolic Logic, San Antonio, January 1987.
2. Joint Meeting of the Mid-Atlantic Mathematical Logic Seminar and the North East Set Theory Seminar, Wesleyan University, April 1988.
3. Recursion Theory Week, Oberwolfach, March 1989.
4. Annual Meeting of the Association for Symbolic Logic, University of Notre Dame, March 1993.
5. Special Session in Pure and Applied Recursion Theory, AMS Meeting, Washington, April 1993.
6. Special Session in Recursion Theory, Joint AMS/DMV Meeting, Heidelberg, Germany, October 1993.
7. Recursion Theory Meeting, Logic Year 1993/94, Leeds, England, July 1994.
8. Winter Meeting of the Association for Symbolic Logic (in conjunction with the Annual AMS/MAA Meeting), San Francisco, January 1995.
9. Midwest Model Theory Meeting, Notre Dame, November 1995.
10. Very Informal Gathering of Logicians, UCLA, January 1996 (declined).
11. Recursion Theory Week, Oberwolfach, January/February 1996.
12. Workshop in Complexity Theory and Recursion Theory, Barcelona, March 1996 (declined).
13. Sixth Asian Logic Meeting, Beijing, May 1996.
14. ASL European Summer Meeting (Logic Colloquium '96), San Sebastián, Spain, July 1996.
15. Special Session in Computability Theory, AMS Meeting, Milwaukee, October 1997.
16. Special Session in Computability Theory, AMS Meeting, Baltimore, January 1998 (declined).
17. Special Session in Computability Theory, European Logic Colloquium, Prague, August 1998 (declined).
18. Colloquium Logicum 98: Logic in Mathematics, Philosophy, and History, Berlin, Germany, August 1998 (declined).
19. Winter Meeting of the Association for Symbolic Logic (in conjunction with the Annual AMS Meeting), San Antonio, January 1999 (declined).
20. Special Session in Computability Theory, AMS Meeting, Gainesville, March 1999 (declined).
21. Annual Meeting of the Association for Symbolic Logic, San Diego, March 1999.
22. International Conference on Mathematical Logic (1999 Mal'cev Meeting), Novosibirsk, Russia, August 1999.

23. Special Session in Computability Theory, Winter Meeting of the Association for Symbolic Logic (in conjunction with the Annual AMS Meeting), Washington, D.C., January 2000.
24. Workshop on Computability and Models, Heidelberg, Germany, January 2001.
25. Oberwolfach Meeting in Computability Theory, January 2001.
26. Special Session on Reverse Mathematics, Annual Meeting of the Association for Symbolic Logic, Philadelphia, March 2001.
27. Symposium on Reverse Mathematics and Computability Theory, Spring Meeting of the Association for Symbolic Logic (in conjunction with a meeting of the American Philosophical Association), Minneapolis, May 2001 (declined).
28. Special Session on Computability Theory, Winter Meeting of the Association for Symbolic Logic, San Diego, January 2002.
29. ASL European Summer Meeting (Logic Colloquium '02), Münster, Germany, August 2002.
30. Greater Boston Logic Conference '03, MIT, May 2003 (declined).
31. Workshop on Computability and Logic, Heidelberg, Germany, June 2003.
32. Winter Meeting of the Association for Symbolic Logic (in conjunction with the Annual AMS Meeting), Phoenix, January 2004.
33. Tutorial at the Logic and Computation Workshop (funded by the New Zealand Institute of Mathematics and its Applications (NZIMA)), Nelson, New Zealand, January 2004.
34. Algebra and Analysis 2004: International conference dedicated to the 200th anniversary of Kazan State University, Kazan, Russia, July 2004 (declined).
35. Conference on Logic, Computability and Randomness 2004, Córdoba, Argentina, September 2004 (declined).
36. North Texas Logic Conference, University of North Texas, Denton, October 2004.
37. Special Session on Computability Theory and Applications, AMS Sectional Meeting, Evanston, Illinois, October 2004.
38. Special Session on Reverse Mathematics, Annual AMS Meeting, Atlanta, January 2005 (declined).
39. SouthEastern Logic Symposium, University of Florida, Gainesville, April 2005.
40. Special Session on Complexity of Algorithms and Computation, AMS Sectional Meeting, Santa Barbara, April 2005 (declined).
41. Special Session on Relative Computation, Computability in Europe 2005, Amsterdam, Netherlands, June 2005 (declined).
42. Workshop on Computational Aspects of Infinity, Singapore, July/August 2005.
43. Colloquium Logicum 2006 (organized by the German Logic Society DVMLG), Bonn, Germany, September 2006.
44. Special Session on Computability Theory in Honor of Manuel Lerman's Retirement, AMS Sectional Meeting, Storrs, Conn., October 2006.
45. Mini-Workshop: Logic, Combinatorics and Independence Results, Oberwolfach, Germany, November 2006 (declined).
46. Workshop on Logic, Computability and Randomness 2007, Buenos Aires, Argentina, January 2007.

47. Special Session in Computability Theory, Annual ASL Meeting, Gainesville, Fla., March 2007 (declined).
48. ASL Spring Meeting, Chicago, April 2007.
49. Russian Conference “Mathematics in the Modern World” dedicated to the 50th anniversary of the Sobolev Institute of Mathematics, Novosibirsk, September 2007 (declined).
50. Dagstuhl Seminar on the Algorithmic-Logical Theory of Infinite Structures, Dagstuhl, Germany, October/November 2007.
51. Special Session in Computability Theory, Joint Meeting of the AMS - NZMS 2007, Wellington, New Zealand, December 2007 (declined).
52. Workshop on Logic, Computability and Randomness 2008, Nanjing, China, May 2008.
53. Special Session in Computability Theory and Effective Algebra, Sectional Meeting of the AMS, Middletown, Conn., October 2008.
54. Special Session in Computability Theory, Annual ASL Meeting, Notre Dame, May 2009.
55. Special Session in Computability Theory, Conference on “Computability in Europe”, Heidelberg, Germany, July 2009 (declined).
56. International Conference on Mathematical Logic (2009 Mal’cev Meeting), Novosibirsk, Russia, August 2009 (declined).
57. Midwest Computability Seminar, University of Chicago, January 2010.
58. International Conference on Mathematical Logic (2010 Mal’cev Meeting), Novosibirsk, Russia, May 2010 (declined).
59. Computability Workshop, co-located with “Computability in Europe 2010” conference, Azores, Portugal, July 2010 (declined).
60. Computability Workshop, co-located with European ASL Meeting, Paris, France, July 2010 (declined).
61. DIMACS Tutorial on Exotic Constructions in Group Theory, and DIMACS Working Group on Exotic Constructions in Group Theory, Rutgers University, September 2010.
62. Special Session in Computability and its applications, AMS Sectional Meeting, Notre Dame, November 2010.
63. Computability Theory and Applications: A Meeting in Honor of Robert I. Soare, University of Chicago, May 2011.
64. Workshop on Computational Prospects of Infinity II, National University of Singapore, August 2011.
65. Reverse Mathematics Workshop, University of Chicago, September 2011.
66. International Conference “Algebra and Mathematical Logic”, Kazan, Russia, September 2011 (declined).
67. Mal’tsev Meeting, Novosibirsk, Russia, October 2011 (declined).
68. Symposium “Degrees and Randomness” (on the occasion of Klaus Ambos-Spies’s 60th birthday), University of Heidelberg, Germany, February 2012.
69. Oberwolfach Meeting in Computability Theory, Oberwolfach, Germany, February 2012.
70. Special Session on Computable Mathematics, AMS Sectional Meeting, George Washington University, Washington, D.C., March 2011.

71. “The Incomputable”, workshop as part of the program “Semantics and Syntax: A Legacy of Alan Turing”, June 2012 (declined).
72. Special Sessions on Logic and Algebraic Logic, and on Computability and Complexity in Discrete and Continuous Worlds, AMS Sectional Meeting, Iowa State University, Ames, April 2013 (declined).
73. Special Session on Computable Structure Theory and Computable Model Theory, Annual ASL Meeting, Waterloo, Ontario, Canada, May 2013.
74. European Logic Colloquium, Évora, Portugal, July 2013.
75. Workshop on Computable Stability theory, American Institute of Mathematics, Palo Alto, Cal., August 2013 (declined).
76. Special Session on Computability Across Mathematics, AMS Sectional Meeting, Washington University, Saint Louis, Missouri, October 2013 (declined).
77. Workshop on “Computable Model Theory”, Banff International Research Station, Canada, November 2013.
78. International Conference “Algebra and Mathematical Logic: Theory and Applications”, Kazan, Russia, June 2014.
79. Conference “Computability, Complexity and Randomness”, Singapore, June 2014 (declined).
80. Special Session on Computability, Conference “Computability in Europe”, Budapest, Hungary, June 2014 (declined).
81. Workshop on Computability, Prague, Czech Republic, July 2014 (declined).
82. Special Session on Computability Theory, Winter Meeting of the Canadian Mathematical Society, Hamilton, Ontario, December 2014.
83. Midwest Computability Seminar, University of Chicago, February 2015.
84. Workshop on Computability Theory, Bucharest, June 2015.
85. Midwest Model Theory Day, University of Illinois-Chicago, April 2016.
86. Logic conference, Southern Illinois University, Carbondale, May 2016 (declined).
87. Special Session on Computability Theory, North American Meeting of the Association for Symbolic Logic, University of Connecticut-Hartford, May 2016.
88. Conference “Computability in Europe 2016”, Paris, France, June 2016.
89. Computability and Complexity Symposium 2017, Victoria University of Wellington, New Zealand, January 2017.
90. Conference “Groups and Computation: interaction between geometric group theory, computability and computer science”, Stevens Institute of Technology, Hoboken, New Jersey, June 2017 (declined).
91. Special Session on Classical Computability Theory, Workshop on Aspects of Computation, Singapore, September 2017 (declined).
92. Special Session in Computability, Southeastern Logic Symposium (SEALS) 2018, University of Florida, Gainesville, March 2018.
93. Special Session in Computability, North American Meeting of the Association for Symbolic Logic, Western Illinois University, Macomb, May 2018.
94. Workshop on Computability Theory and its Applications, University of Waterloo, Ontario, Canada, June 2018.

95. Special Session on Computability, Complexity, and Learning, University of Hawai'i-Mānoa, Honolulu, March 2019 (declined).
96. Special Session on Computability Theory, University of Connecticut-Hartford, April 2019.
97. Conference "Model Theory and Mathematical Logic – Conference in honor of Chris Laskowski's 60th birthday", University of Maryland, College Park (speaking by Skype), June 2019.
98. Computability, Complexity and Randomness conference, Nazarbayev University, Astana, Kazakhstan, June 2019.
99. Conference "Algebra and Mathematical Logic: Theory and Applications", Kazan, Russia, June 2019 (declined).
100. Workshop on Computability Theory 2019, University of Leeds, England, July 2019 (declined).
101. Workshop on Reverse Mathematics of Combinatorial Principles, Casa Matemática Oaxaca, Mexico, September 2019.
102. Special Session on Computability, Winter Meeting of the Canadian Mathematical Society, Toronto, Ontario, December 2019 (declined).
103. Dagstuhl meeting on "Descriptive Set Theory and Computable Topology", Dagstuhl, Germany, April 2020 (postponed to November 2021).
104. Leeds Computability Days 2020, Leeds, England, June 2020 (postponed).
105. Second Workshop on Digitalization and Computable Models (WDCM-2020), Sobolev Institute of Mathematics, Novosibirsk, Russia, July 2020 (declined).
106. Online Logic Seminar (completely virtual), October 2020.
107. World Logic Day Workshop, Sobolev Institute of Mathematics, Novosibirsk, Russia, and Nazarbayev University, Nur-Sultan, Kazakhstan, virtual, January 2021.

### **Colloquium and Seminar Talks**

1. University of Notre Dame, February 1986, February 1988, November 1996, November 2004, April 2007 and August 2014.
2. University of Maryland, February 1986, April and December 1987.
3. University of Illinois at Urbana-Champaign, May 1986 and November 1990.
4. University of Illinois at Chicago, May 1986 and November 1997.
5. Cornell University, March 1987.
6. Humboldt University, (East) Berlin, June 1989.
7. University of Leeds, England, July 1989 and April 2003.
8. University of Connecticut, October 1990.
9. Kazan State University, Russia, March 1991.
10. University of Chicago, February 1992, February 1997, April 1998, and February 2006.
11. Academia Sinica, Beijing, China, June 1992.
12. Nanjing University, China, June 1992.
13. Guizhou University, Guiyang, China, June 1992.
14. Marquette University, Milwaukee, March 1995.
15. University of Wisconsin–Parkside, May 1995.
16. University of Bristol, England, February 1996.

17. University of Bradford, England, February 1996.
18. University of Siena, Italy, July 1998.
19. University of Würzburg, Germany, November 2002.
20. University of Bonn, Germany, February 2003.
21. McMaster University, Hamilton, Ontario, Canada, January 2006.
22. University of Hawai'i-Mānoa, Honolulu, March 2010.
23. Kazakh National University, Almaty, June 2010 (summer course on priority arguments).
24. Southern Illinois University, Carbondale, March 2014.
25. Indiana University, Bloomington, May 2014.
26. Sofia University, Bulgaria, July 2015.
27. National University of Singapore, September 2016.
28. George Washington University, Washington, D.C., November 2019.

### Doctoral Theses Supervised

1. Peter A. Cholak (Ph.D. 1991, currently at University of Notre Dame, advised jointly with T. Millar): Automorphisms of the lattice of recursively enumerable sets
2. Deborah S. Kaddah (Ph.D. 1992, currently at Systems Programming Limited, San Francisco): Uniformity in the recursively enumerable degrees and infima in the degrees of the differences of recursively enumerable sets
3. Michael A. Jahn (Ph.D. 1993, currently at Digipen Institute of Technology, Singapore): The index set of the cuppable sets
4. Lisa R. Galminas (Ph.D. 1994, currently at Northwestern State University of Louisiana, Natchitoches): Computable algebraic structures
5. Steven D. Leonhardi (Ph.D. 1994, currently at Winona State University, Winona, Minnesota): Generalized nonsplitting in the recursively enumerable degrees
6. Evan Griffiths (Ph.D. 1998, currently at Accident Compensation Corporation, Wellington, New Zealand): Completely mitotic Turing degrees, jump classes, and enumeration degrees
7. Deji Wang (Ph.D. 2000, currently at TrueDemand Software, Los Gatos, Cal.): Saturation properties in the computably enumerable degrees
8. Thomas F. Kent (Ph.D. 2005, currently at Marywood University, Scranton, Pennsylvania): Decidability and definability in the  $\Sigma_2^0$ -enumeration degrees
9. Alexander Raichev (Ph.D. 2006, currently at University of Auckland, New Zealand): Relative randomness via rK-reducibility
10. Christopher P. Alfeld (Ph.D. 2007, currently at Google, Madison, Wisconsin): To branch or not to branch: Branching and non-branching in the Medvedev lattice of  $\Pi_1^0$  classes
11. Asher M. Kach (Ph.D. 2007, currently at Code.org, Seattle, Washington): Characterizing the computable structures: Boolean algebras and linear orders
12. James D. Hunter (Ph.D. 2008, currently at Oracle Corporation, Burlington, Massachusetts): Higher-order reverse topology
13. Daniel D. Turetsky (Ph.D. 2010, currently at Victoria University of Wellington, New Zealand): Effective algebra and effective dimension

14. Achilles A. Beros (Ph.D. 2013, currently at Miami University of Ohio): Applications of arithmetic complexity and priority arguments in algorithmic learning theory
15. Brian T. Rice (Ph.D. 2014, currently at Huntington University, Indiana): The Thin Set Theorem for pairs and substructures of the Muchnik lattice
16. Kyle W. Riggs (Ph.D. 2014, co-advised with Lawrence S. Moss at Indiana University-Bloomington, currently at Eastern Washington University): Computable properties of decomposable and completely decomposable groups
17. Kuanysh Sh. Abeshev (Ph.D. 2014, co-advised with Serikzhan A. Badaev at Kazakh National University, currently at Kazakh National University): Computable numberings in hierarchies
18. Reese W. Johnston (Ph.D. 2018): Computability in uncountable binary trees

### **Postdoctoral Fellows Mentored**

1. André O. Nies (fall 1994, now at University of Auckland, New Zealand)
2. D. Reed Solomon (1998-2002, since 2000 as NSF Postdoctoral Fellow, now at University of Connecticut-Storrs)
3. Charles F. D. McCoy (2000-2002 as VIGRE Fellow, now at University of Portland, Oregon)
4. Alfredo Dolich (2003-04 as VIGRE Fellow, now at Kingsborough Community College, New York City)
5. Bart Kastermans (2006-09, now at Koninklijke Post Nederland, Amsterdam, Netherlands)
6. Keng Meng (“Selwyn”) Ng (2009-2011, now at Nanyang Technological University, Singapore)
7. Uri Andrews (2010-13, now at University of Wisconsin-Madison)
8. Mingzhong Cai (2011-14, co-mentored with Joseph S. Miller, now self-employed in New Hampshire)
9. David E. Diamondstone (2012-13, now at Google, Mountain View, California)
10. Jun Le Goh (2019-2022, co-mentored with Mariya I. Soskova)

### **Service to the Research Community**

1. Reviewer for NSF, Marsden Fund (New Zealand) and various other grant agencies, mainly in mathematical logic.
2. Referee for various journals.
3. Reviewer for Mathematical Reviews/MathSciNet.
4. Book reviewer for Journal of Symbolic Logic and various commercial publishers, in particular of books in calculus, linear algebra, logic, and teacher education.
5. Founder and organizer, Southern Wisconsin Logic Colloquium, since 1990.
6. Organizer, Midwest Model Theory Conference, University of Wisconsin–Madison, May, 1991.
7. Program Committee Chair, Winter Meeting of the Association for Symbolic Logic (in conjunction with the annual AMS/MAA meeting), San Antonio, January, 1993.
8. Co-organizer, special session in recursion theory, Joint AMS/DMV Meeting, Heidelberg, Germany, October, 1993.

9. Editor, *Journal of Symbolic Logic*, 1993-98.
10. Coordinating editor, *Journal of Symbolic Logic*, 1996-97.
11. Chair, ASL Committee on Translations and ASL Subcommittee of the AMS Committee on Translations from Russian and Other Slavic Languages, 1995-2001.
12. Organizing committee co-chair, Annual Meeting of the Association for Symbolic Logic, Madison, March 1996.
13. Co-organizer, special session in computability theory, European Logic Colloquium, Leeds, England, July 1997.
14. Co-organizer, Workshop on Recursion and Complexity Theory '97, Kazan, Russia, July 1997.
15. Co-organizer, special session in computability theory, AMS Meeting, Milwaukee, October 1997.
16. Member, executive committee, Association for Symbolic Logic, 1999-2001.
17. Editor, *Walter de Gruyter Book Series in Logic and Applications*, 1999-2003.
18. Editor, *Lecture Notes in Logic* (published by A. K. Peters and then by Cambridge University Press for the Association for Symbolic Logic), 1999-2009.
19. Co-chair, Program Committee, AMS Summer Research Conference on Computability Theory and Applications, University of Colorado, Boulder, June 1999.
20. Program Committee member, International Conference on Mathematical Logic (1999 Mal'cev Meeting), Novosibirsk, Russia, August 1999.
21. Co-organizer, Oberwolfach meeting in computability theory, January 2001.
22. Co-organizer, special session in computability theory, ASL European Summer Meeting (Logic Colloquium '02), Münster, Germany, August 2002.
23. Co-organizer, Workshop on Computability and Logic, Heidelberg, Germany, June 2003.
24. Editor for logic, *Transactions of the AMS*, 2003-12.
25. External Ph.D. examiner to Guohua Wu (Victoria University of Wellington, New Zealand, 2003), Andrew Lewis (Leeds University, England, 2003), Pavel Semukhin (University of Auckland, 2008), Keng Meng Ng (Victoria University of Wellington, New Zealand, 2009), Yiqun Liu (National University of Singapore), Junren Ru and Hongyuan Yu (Nanyang Technological University, Singapore, 2017 and 2018, resp.), Martin Monath (University of Heidelberg, Germany, 2019)
26. Co-organizer, Workshop on Computability and Logic, Heidelberg, Germany, June 2003.
27. Program Committee member, ASL European Summer Meeting (Logic Colloquium '04), Torino, Italy, July 2004.
28. Co-organizer, special session in model theory and computability theory, AMS Sectional Meeting, Notre Dame, April 2006.
29. Program Committee member, conference on "Theory and Applications of Models of Computation 2006", Beijing, China, May 2006.
30. Program Committee chair, ASL European Summer Meeting (Logic Colloquium '07), Wrocław, Poland, July 2007.
31. Member, Nominating Committee, Association for Symbolic Logic, 2007 (chair) and 2008.



32. Co-organizer, 5-day workshop on “Computability, Reverse Mathematics and Combinatorics”, Banff International Research Station, Canada, December 2008.
33. Program Committee member, Mal’cev meeting in Honor of Ershov’s 70th Birthday, Novosibirsk, May 2010.
34. Program Committee member, Conference on Complexity, Computability and Randomness, Cape Town, South Africa, January 2011.
35. Program Committee member, International Conference “Algebra and Mathematical Logic”, Kazan, Russia, September 2011.
36. Co-organizer, Oberwolfach meeting in computability theory, February 2012.
37. Organizing Committee chair, Annual Meeting of the Association for Symbolic Logic, Madison, April 2012.
38. Program Committee member, Colloquium Logicum, Paderborn, Germany, September 2012.
39. Reviews editor, Bulletin of Symbolic Logic, 2013-18.
40. (Substitute) Member, Prize Committee of the Association for Symbolic Logic, 2014.
41. Program Committee member, International Conference “Algebra and Mathematical Logic: Theory and Applications”, Kazan, Russia, June 2014.
42. Co-organizer, special session in computability theory, Annual North American Meeting of the Association for Symbolic Logic, University of Illinois at Urbana-Champaign, March 2015.
43. Program Committee member, Mal’tsev Meeting 2015, Novosibirsk, May 2015.
44. Program Committee member, 12th Annual Conference on Theory and Applications of Models of Computation, National University of Singapore, May 2015.
45. Co-organizer, special session in classical computability theory, Computability in Europe 2015, Bucharest, June 2015.
46. Co-organizer, special session in computability theory and applications, AMS sectional meeting, Loyola University, Chicago, Illinois, October 2015.
47. Co-organizer, Dagstuhl meeting in computability theory, February 2017.
48. Program Committee member, 14th Annual Conference on Theory and Applications of Models of Computation, University of Berne, Switzerland, April 2017.
49. Program Committee member, 12th Conference on Computability and Randomness (CCR), Infosys Mysore Campus, India, July 2017.
50. Co-organizer, Oberwolfach meeting in computability theory, January 2018.
51. Program Committee member, Annual Conference on Theory and Applications of Models of Computation, Kitakyushu, Japan, April 2019.
52. Program Committee member, Mal’tsev Meeting 2019, Novosibirsk, Russia, August 2019.
53. Program Committee member, Annual Conference on Theory and Applications of Models of Computation, Changsha, China, May 2020.
54. Program Committee member, Mal’tsev Meeting 2020, Novosibirsk, Russia, May 2020 (postponed to November 2020).
55. Chair, ASL Committee on Translations, 2020-22.
56. External advisor, mathematics department hiring committee, Nazarbayev University, Nur-Sultan, Kazakhstan, February 2020.

57. Co-organizer, special session in “Classical computability theory: Open problems and solutions”, Computability in Europe (CiE 2021) conference, Ghent, Belgium, July 2021.
58. Co-organizer, special session in computability theory, European Logic Colloquium, Poznań, Poland, July 2020 (postponed to July 2021).

### **Service to Mathematics Education**

1. Chair or co-chair, Math Education Liaison Committee (joint committee of the UW mathematics department and the UW School of Education), since 2005.
2. Faculty course coordinator for mathematics education for elementary school teachers, since 2006.
3. Member, hiring committee, Madison Area Technical College, February 2006.
4. Departmental representative, MSRI workshops on mathematics education, May 2006-08.
5. Faculty development grant for developing a syllabus and course materials for a new algebra course for future middle school math teachers, Spring 2008.
6. Consultant for the Wisconsin Department of Public Instruction on the implementation of the Common Core State Standards, since 2013.

### **Service to the University of Wisconsin**

1. Associate Chair, math department, 2011-2016, calendar year 2018.
2. Interim Chair, May 2012.
3. Chair, Math 13X Course Supervisor search committee, 2011 and 2013.
4. Member, math department graduate admissions committee, 2003-05, 2009-12.
5. Member, math department graduate program committee, 1990-92 and 1999-2002 (chair).
6. Member, math department graduate advising committee, 1992-93, 1997-98, 2000-01, 2004-06, 2012-13, and 2019-20.
7. Member, math department TA budget committee, 1993.
8. Member, math department hiring committee, 1994-95, 1997-98, 2000-02, and 2003-09 (chair 2003-05), 2011-16.
9. Senator, faculty senate, 1996-1999, alternate 2005-08.
10. Member, math department sabbatical committee, 1996, 2003, 2010 and 2017 (chair 2003, 2010 and 2017).
11. Member, math department undergraduate program committee, 1996-97, 1999-2000, 2001-02, 2004-12 and 2018-19 (chair 2010-11).
12. Member, math department instructional delivery committee, 1996-99 (chair 1998-99).
13. Member, math department budget committee, 1998-99, 2001-02, 2011-12, 2013-14.
14. Member, math department faculty affairs committee, 2003-04, 2010-11, 2014-16 and 2017-18.
15. Member, math department VIGRE coordinating committee, 2004-08.
16. Member, math department calculus committee, 2005-09.
17. Member, math/education liaison committee, 2005-16 and 2017-20 (co-chair 2005-11, chair 2011-12, fall 2012, 2013-16 and 2017-20).

18. Member, math department awards committee, 2008-09, 2010-11, 2014-16, 2017-20 (chair 2017-18 and 2019-20).
19. Member, math department salary committee, 2012-15 and 2018-20.
20. Member, Student Academic Misconduct Hearing Panel, 1999-2002 (chair 2001-02) and 2003-10.
21. Member, Advisory Committee for the Office for Equity and Diversity, 2011-16.
22. Member, Graduate Faculty Executive Committee, University of Wisconsin-Madison, 2017-21.