Russell G. Miller

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Degrees:

Ph.D., Mathematics, University of Chicago, June 2000; Advisor: Prof. Robert Soare.

M.S., Mathematics, University of Chicago, August 1991.

A.B. *magna cum laude*, Mathematics, Princeton University, June 1990.

Teaching Experience:

Professor, Mathematics Dept., Queens College, CUNY, 2012 – present.

Doctoral Faculty member, Mathematics Program, CUNY Graduate Center, 2007 – present.

Doctoral Faculty member, Computer Science Program, CUNY Graduate Center, 2005 – present.

Associate Professor, Mathematics Dept., Queens College, CUNY, 2009 – 2011.

Assistant Professor, Mathematics Dept., Queens College, CUNY, 2003 – 2008.

VIGRE Assistant Professor, Cornell University, 2000–2003.

Lecturer in the College, University of Chicago, 1999–2000 & 1992–1993.

Lecturer & Staff Writer, S.E.S.A.M.E., University of Chicago, 1997–99.

Research Articles and Book Chapters:

(Most articles available at `qcpages.qc.cuny.edu/~rmiller/research.html`.)

1. "The Δ_2^0-Spectrum of a Linear Order," *Journal of Symbolic Logic* **66** (2001) 470–486.

2. "Definable Incompleteness and Friedberg Splittings," *Journal of Symbolic Logic* **67** (2002) 679–696.

3. "Orbits of Computably Enumerable Sets: Low Sets Can Avoid an Upper Cone," *Annals of Pure and Applied Logic* **118** (2002) 61–85.

4. "The $\forall\exists$-Theory of $\mathcal{R}(\leq, \vee, \wedge)$ is Undecidable," with A. Nies & R. Shore, *Transactions of the American Mathematical Society* **356** (2004) 8, 3025–3067.

5. "The Computable Dimension of I-Trees of Infinite Height," with N. Kogabaev & O. Kudinov, *Algebra and Logic* **43** (2004) 6, 393–407.

6. "The Computable Dimension of Trees of Infinite Height," *Journal of Symbolic Logic* **70** (2005) 111–141.

7. "Computable Categoricity of Trees of Finite Height," with S. Lempp, C. McCoy, & R. Solomon, *Journal of Symbolic Logic* **70** (2005) 151–215.

8. "Enumerations in Computable Structure Theory," with S. Goncharov, V. Harizanov, J. Knight, C. McCoy, & R. Solomon, *Annals of Pure and Applied Logic* **136** (2005) 3, 219–246.

9. "An Introduction to Infinite Time Computable Model Theory," with J. Hamkins, D. Seabold, & S. Warner, chapter in *New Computational Paradigms: Changing Conceptions of What is Computable*, eds. S.B. Cooper, B. Löwe, & A. Sorbi (New York: Springer-Verlag, 2007) ISBN 978-0-387-36033-1, 521–557.

10. "Spectra of Structures and Relations," with V. Harizanov, *The Journal of Symbolic Logic* **72** (2007) 1, 324–348.

11. "Order-computable Sets," with D. Hirschfeldt & S. Podzorov, *The Notre Dame Journal of Formal Logic* **48** (2007) 3, 317–347.

12. "Post's Problem for Ordinal Register Machines: An Explicit Approach," with J. Hamkins, *Annals of Pure and Applied Logic* **160** (2009) 3, 302–309 (expanded version of Research Abstract 2 below).

13. "d-Computable Categoricity for Algebraic Fields," *The Journal of Symbolic Logic* **74** (2009) 4, 1325–1351.

14. "Degrees of Categoricity of Computable Structures," with E. Fokina & I. Kalimullin, *Archive for Mathematical Logic* **49** (2010) 1, 51–67.

15. "The Basic Theory of Infinite Time Register Machines," with M. Carl, T. Fischbach, P. Koepke, M. Nasfi, & G. Weckbecker, *Archive for Mathematical Logic*, **49** (2010) 2, 249–273 (expanded version of Research Abstract 4 below).

16. "Is It Easier to Factor a Polynomial or to Find a Root?" *Transactions of the American Mathematical Society*, **362** (2010) 10, 5261–5281.

17. "Simple Structures with Complex Symmetry," with V. Harizanov & A. Morozov, *Algebra and Logic* **49** (2010) 1, 68–90.

18. "Computability of Fraïssé Limits," with B. Csima, V. Harizanov & A. Montalbán, *Journal of Symbolic Logic* **76** (2011) 1, 66–93.

19. "An Introduction to Computable Model Theory on Groups and Fields," *Groups, Complexity and Cryptology* **3** (2011) 1, 25–46.

20. "Noncomputable Functions in the Blum-Shub-Smale Model," with W. Calvert & K. Kramer, *Logical Methods in Computer Science* **2** (2011) 15, 1–20 (expanded version of Research Abstract 8 below).

21. "Low$_5$ Boolean Subalgebras and Computable Copies," *Journal of Symbolic Logic* **76** (2011) 3, 1061–1074.

22. "The Hierarchy of Equivalence Relations on the Natural Numbers Under Computable Reducibility," with S. Coskey & J.D. Hamkins, *Computability* **1** (2012) 15–38.

23. "Degree Spectra of High$_n$ and Non-low$_n$ Degrees," with A. Frolov, V. Harizanov, I. Kalimullin, & O. Kudinov, *Journal of Logic and Computation* **22** (2012) 4, 755–777. DOI: `10.1093/logcom/exq041`.

24. "Local Computability and Uncountable Structures," chapter in the book *Effective Mathematics of the Uncountable*, eds. N. Greenberg, J.D. Hamkins, D.R. Hirschfeldt, & R.G. Miller, A.S.L. *Lecture Notes in Logic* (Cambridge University Press, 2013), 81–123.

25. "Approximating Functions and Measuring Distance on a Graph," with W. Calvert & J. Chubb Reimann, in the *Proceedings of the 12th Asian Logic Conference* (Singapore: World Scientific Publishing Co., 2013), 24–52.

26. "Computably Categorical Fields via Fermat's Last Theorem," with H. Schoutens, *Computability* **2** (2013) 51–65.

27. "Classes of Structures with Universe a Subset of ω_1," with E. Fokina, S.-D. Friedman, & J.F. Knight, *Journal of Logic and Computation* (2013) 23 (6), 1249–1265; doi: 10.1093/logcom/ext042. (Expanded version of Research Abstract 10 below.)

28. "Computing Constraint Sets for Differential Fields," with A. Ovchinnikov & D. Trushin, *Journal of Algebra* (2014) 407, 316–357. (Expanded version of Research Abstract 9 below.)

29. "Complexity of Equivalence Relations and Preorders from Computability Theory," with G. Ianovski, K.M. Ng, & A. Nies, *Journal of Symbolic Logic* **79** (2014) 3, 859–881.

30. "Categoricity Properties for Computable Algebraic Fields," with D. Hirschfeldt, K. Kramer, & A. Shlapentokh, *Transactions of the American Mathematical Society* **367** (2015) 6, 3955–3980.

31. "Computable Categoricity for Algebraic Fields with Splitting Algorithms," with A. Shlapentokh, *Transactions of the American Mathematical Society* **367** (2015) 6, 3981–4017.

32. "Finitary Reducibility on Equivalence Relations," with K.M. Ng, *Journal of Symbolic Logic* **81** (2016) 4, 1225–1254.

33. "Turing Degree Spectra of Differentially Closed Fields," with D. Marker, *Journal of Symbolic Logic* **82** (2017) 1, 1–25.

34. "Computable Functors and Effective Interpretability," with M. Harrison-Trainor, A. Melnikov, & A. Montalbán, *Journal of Symbolic Logic* **82** (2017) 1, 77–97.

35. "As Easy as $\mathbb{Q}$: Hilbert's Tenth Problem for Subrings of the Rationals," with K. Eisenträger, J. Park, & A. Shlapentokh, *Transactions of the American Mathematical Society* **369** (2017) 11, 8291–8315.

36. "On Computable Field Embeddings and Difference Closed Fields," with M. Harrison-Trainor & A. Melnikov, *Canadian Journal of Mathematics* **69** (2017) 6, 1338-1363.

37. "Effective Classification of Computable Structures," with K. Lange & R.M. Steiner, *The Notre Dame Journal of Formal Logic* **59** (2018) 1, 35–59.

38. "A Computable Functor from Graphs to Fields," with B. Poonen, H. Schoutens, & A. Shlapentokh, *Journal of Symbolic Logic* **83** (2018) 1, 326–348.

39. "Borel Functors and Infinitary Interpretations," with M. Harrison-Trainor & A. Montalbán, *Journal of Symbolic Logic* **83** (2018) 4, 1434–1456.

40. "Turing Degree Spectra of Real Closed Fields," with V. Ocasio Gonzalez, *Archive for Mathematical Logic* **58** (2019) 3-4, 387–411.

41. "Primitive Recursive Fields and Categoricity," with I. Kalimullin, communication in *Algebra & Logic* **58** (2019) 1, 132–138 (in Russian); **58** (2019) 1, 95–99 (in English).

42. "The Hilbert's-Tenth-Problem Operator," with K. Kramer, *Israel Journal of Mathematics* **230** (2019) 2, 693–713.

43. "Isomorphism and Classification for Countable Structures," *Computability* **8** (2019) 2, 99–117.

44. "Turing Degrees of Complete Formulas of Almost Prime Models," with S. Goncharov & V. Harizanov, communication in *Algebra & Logic* (Russian version) **58** (2019) 3, 417–425; *Algebra & Logic* (English version) **58** (2019) 3, 282–287.

45. "On Decidable Categoricity and Almost Prime Models," with S. Goncharov & V. Harizanov, *Siberian Advances in Mathematics* **30** (2020) 3, 200–212. (Full version of the communication 44 above.)

46. "Model Completeness and Relative Decidability," with J. Chubb & R. Solomon, *Archive for Mathematical Logic* **60** (2021) 6, 721–735.

47. "A Note on Computable Distinguishing Colorings," with N. Bazhenov, N. Greenberg, A. Melnikov, & K.M. Ng, *Lobachevskii Journal of Mathematics* **42** (2021) 4, 693–700.

48. "On Existential Definitions of C.E. Subsets of Rings of Functions of Characteristic 0," with A. Shlapentokh, *Annals of Pure and Applied Logic* **173** (2022) 4.

49. "HTP-complete Rings of Rational Numbers," *Journal of Symbolic Logic* **87** (2022) 1, 252–272.

50. "Interpreting a Field in its Heisenberg Group," with R. Alvir, W. Calvert, G. Goodman, V. Harizanov, J. Knight, A. Morozov, A. Soskova, & R. Weisshaar, *Journal of Symbolic Logic* **87** (2022) 3, 1215–1230.

51. "Effectivizing Lusin's Theorem," *Journal of Logic and Analysis* **14** (2022) 3, 1–32.

52. "A Topological Approach to Undefinability in Algebraic Fields," with K. Eisenträger, C. Springer, & L. Westrick, *Bulletin of Symbolic Logic* **29** (2023) 4, 626–655.

53. "Computable Structure Theory of Forcing," with J.D. Hamkins & K. Williams, accepted with revisions for *Computability*.

54. "Torsion-Free Abelian Groups of Finite Rank and Fields of Finite Transcendence Degree," with M.C. Ho & J.F. Knight, submitted for publication.

55. "Differentially Closed Fields and Universality on a Cone," submitted for publication.

56. "Computability and the Absolute Galois Group of $\mathbb{Q}$," submitted for publication.

57. "Countable and Finitary Reductions on Equivalence Relations," with M.C. Ho, S. Jackson, S. Lempp, and N. Schweber, submitted for publication.

58. "Forcing and Genericity for Algebraic Fields," with K. Eisenträger, C. Springer, & L. Westrick, in preparation.

59. "Bases and Maximal Independent Sets for Computable Free Groups," with C. McCoy, in preparation.

Proceedings Chapters & Peer-Reviewed Extended Research Abstracts:

(Most abstracts available at `qcpages.qc.cuny.edu/~rmiller/research.html`.)

1. "Locally Computable Structures," in *Computation and Logic in the Real World - Third Conference on Computability in Europe, CiE 2007*, eds. S.B. Cooper, B. Löwe, & A. Sorbi, *Lecture Notes in Computer Science* **4497** (Berlin: Springer-Verlag, 2007), 575–584.

2. "Post's Problem for Ordinal Register Machines," with J. Hamkins, in *Computation and Logic in the Real World - Third Conference on Computability in Europe, CiE 2007*, eds. S.B. Cooper, B. Löwe, & A. Sorbi, *Lecture Notes in Computer Science* **4497** (Berlin: Springer-Verlag, 2007), 358–367. (See also item 12 above, under Research Articles.)

3. "The Complexity of Quickly ORM-Decidable Sets," with J. Hamkins & D. Linetsky, in *Computation and Logic in the Real World - Third Conference on Computability in Europe, CiE 2007*, eds. S.B. Cooper, B. Löwe, & A. Sorbi, *Lecture Notes in Computer Science* **4497** (Berlin: Springer-Verlag, 2007), 488–496.

4. "An Enhanced Theory of Infinite Time Register Machines," with P. Koepke, in *Logic and Theory of Algorithms, Fourth Conference on Computability in Europe, CiE 2008*, eds. A. Beckmann, C. Dimitracopoulos, & B. Löwe, *Lecture Notes in Computer Science* **5028** (Berlin: Springer-Verlag, 2008), 265–274. (See also item 15 above, under Research Articles.)

5. "Perfect Local Computability and Computable Simulations," with D. Mulcahey, in *Logic and Theory of Algorithms, Fourth Conference on Computability in Europe, CiE 2008*, eds. A. Beckmann, C. Dimitracopoulos, & B. Löwe, *Lecture Notes in Computer Science* **5028** (Berlin: Springer-Verlag, 2008), 388–397.

6. "Spectra of Algebraic Fields and Subfields," with A. Frolov & I. Kalimullin, in *Mathematical Theory and Computational Practice: Fifth Conference on Computability in Europe, CiE 2009*, eds. K. Ambos-Spies, B. Löwe, & W. Merkle, *Lecture Notes in Computer Science* **5635** (Berlin: Springer-Verlag, 2009), 232–241.

7. "Real Computable Manifolds and Homotopy Groups," with W. Calvert, in *Unconventional Computation, 8th International Conference, UC 2009, Proceedings*, eds. C. Calude, J. Costa, N. Dershowitz, E. Freire, & G. Rozenberg, *Lecture Notes in Computer Science* **5715** (Berlin: Springer-Verlag, 2009), 98–109.

8. "The Cardinality of an Oracle in Blum-Shub-Smale Computation," with W. Calvert & K. Kramer, in *Proceedings: Seventh International Conference on Computability and Complexity in Analysis*, eds. X. Zheng & N. Zhong, *Electronic Proceedings in Theoretical Computer Science* **24** (2010), 56–66. (See also item 20 above, under Research Articles.)

9. "Adapting Rabin's Theorem for Differential Fields," with A. Ovchinnikov, in *Models of Computation in Context: Seventh Conference on Computability in Europe, CiE 2011*, eds. B. Löwe, D. Normann, I. Soskov, & A. Soskova, *Lecture Notes in Computer Science* **6735** (Berlin: Springer-Verlag, 2011), 211–220. (See also item 28 above, under Research Articles.)

10. "Computable Differential Fields," in *Mathematisches Forschingsinstitut Oberwolfach, Report No. 08/2012*, 2012, 439–441.

11. "Classes of Structures with Universe a Subset of ω_1," with E. Fokina, S.-D. Friedman, J.F. Knight, & A. Montalbán, in *The Infinity Project: A 2009-2011 Research Programme*, eds. S.-D. Friedman, M. Koerwien, & M. Müller *CRM Documents* **11** (Bellaterra, Barcelona: Centre de Recerca Matemática, 2012), pp. 39-50. (See also item 27 above, under Research Articles.)

12. "Local Computability for Ordinals," with J.N.Y. Franklin, A.M. Kach, & R. Solomon, in *The Nature of Computation: 9th Conference on Computability in Europe, CiE 2013*, eds. P. Bonizzoni, V. Brattka, & B. Löwe, *Lecture Notes in Computer Science* **7921** (Berlin: Springer-Verlag, 2013), 161–170.

13. "Isomorphisms of Non-Standard Fields and Ash's Conjecture," with R. Dimitrov, V. Harizanov, & K.J. Mourad, in *Language, Life, Limits: 10th Conference on Computability in Europe, CiE 2014*, eds. A. Beckmann, E. Csuhaj-Varjú, & K. Meer, *Lecture Notes in Computer Science* **8493** (Berlin: Springer-Verlag, 2014), 143–152.

14. "Effective Symmetry Breaking," with R. Solomon & R.M. Steiner, in *Language, Life, Limits: 10th Conference on Computability in Europe, CiE 2014*, eds. A. Beckmann, E. Csuhaj-Varjú, & K. Meer, *Lecture Notes in Computer Science* **8493** (Berlin: Springer-Verlag, 2014), 314–323.

15. "Baire Category for Hilbert's Tenth Problem Inside $\mathbb{Q}$," in *Pursuit of the Universal: 12th Conference on Computability in Europe, CiE 2016*, eds. A. Beckmann, L. Bienvenu, & N. Jonoska *Lecture Notes in Computer Science* **9709** (Berlin: Springer-Verlag, 2016), 343–352.

16. "Hilbert's Tenth Problem on Subrings of $\mathbb{Q}$," in *Mathematisches Forschingsinstitut Oberwolfach, Report No. 49/2016*, 2016, 2824–2826.

17. "Revisiting Uniform Computable Categoricity: For the Sixtieth Birthday of Prof. Rod Downey," in *Computability and Complexity: Essays Dedicated to Rodney G. Downey on the Occasion of His Sixtieth Birthday*, eds. A. Day, M. Fellows, N. Greenberg, B. Khoussainov, A. Melnikov, & F. Rosamond, *Lecture Notes in Computer Science* **10010** (Berlin: Springer-Verlag, 2017), 254–270.

18. "Computable Transformations of Structures," in *Unveiling Dynamics and Complexity: 13th Conference on Computability in Europe, CiE 2017*, eds. J. Kari, F. Manea, & I. Petre, *Lecture Notes in Computer Science* **10307** (Berlin: Springer-Verlag, 2017), 88–97.

19. "Measure Theory and Hilbert's Tenth Problem Inside $\mathbb{Q}$," in *Sets and Computations*, eds. S.D. Friedman, D. Raghavan, & Y. Yang, vol. 33 of the Lecture Note Series, Institute for Mathematical Sciences, National University of Singapore (World Scientific, 2017), 253–269.

20. "Effective Classification and Measure for Countable Structures," in *Mathematisches Forschingsinstitut Oberwolfach, Report No. 1/2018*, 2018, 25–27.

21. "Degree Spectra for Transcendence in Fields," with I. Kalimullin & H. Schoutens, in *Computing with Foresight and Industry: 15th Conference on Computability in Europe, CiE 2019*, eds. F. Manea, B. Martin, D. Paulusma, & G. Primiero, *Lecture Notes in Computer Science* **11558** (Berlin: Springer-Verlag, 2019), 205–216.

22. "Computable Reducibility for Cantor Space," chapter in *Structure and Randomness in Computability and Set Theory*, eds. D. Cenzer, C. Porter, & J. Zapletal (World Scientific, 2020), 155–196.

23. "Non-coding Enumeration Operators," in *Beyond the Horizon of Computability: 16th Conference on Computability in Europe, CiE 2020*, eds. M. Anselmo, F. Manea, & A. Pauly, *Lecture Notes in Computer Science* **12098** (Berlin: Springer-Verlag, 2020), 112–123.

24. "Generic Algebraic Fields," in *Mathematisches Forschingsinstitut Oberwolfach, Report No. 21/2021*, 2021, 16–19.

25. "Computable Procedures for Fields," in *Connecting with Computability: 17th Conference on Computability in Europe, CiE 2021*, eds. L. de Mol, D. Fernández-Duque, F. Manea, & A. Weiermann, *Lecture Notes in Computer Science* **12813** (Berlin: Springer-Verlag, 2021), 342–352.

26. "Topological Spaces of Countable Structures," summary within Descriptive Set Theory and Computable Topology (Dagstuhl Seminar 21461), eds. M. Hoyrup, A. Pauly, V. Selivanov, and M. Soskova, *Dagstuhl Reports* **11** (2022) 10, 72–93.

27. "Direct Construction of Scott Ideals," in *Unity of Logic and Computation: 19th Conference on Computability in Europe, CiE 2023*, eds. G. Della Vedova, B. Dundua, S. Lempp, & F. Manea, *Lecture Notes in Computer Science* **13967** (Berlin: Springer-Verlag, 2023), 23–34.

Expository Publications:

1. "Computable Fields and Galois Theory," *Notices of the AMS* **55** (August 2008) 7, 798–807. Chinese translation in *Mathematical Advances in Translation* **29** (2010) 4, 319–330.

Books Edited:

Sailing Routes in the World of Computation: 14th Conference on Computability in Europe, CiE 2018, eds. F. Manea, R.G. Miller, & D. Nowotka, *Lecture Notes in Computer Science* **10936** (Berlin: Springer-Verlag, 2018).

Effective Mathematics of the Uncountable, eds. N. Greenberg, J.D. Hamkins, D.R. Hirschfeldt, & R.G. Miller, Association of Symbolic Logic *Lecture Notes in Logic* **41** (Cambridge University Press, 2013).

Conference Talks and Departmental Colloquia:
(see also the section **Seminar Talks** below)

"Computability for Absolute Galois Groups of Computable Fields," 14 May 2024, invited talk in the Computability Theory Special Session at the ASL Annual Meeting, Iowa State University, Ames, IA.

"Hilbert's Tenth Problem for Generic Algebraic Fields," 21 April 2024, invited talk in the *Special Session on Computability Theory*, American Mathematical Society sectional meeting, University of Wisconsin-Milwaukee.

"Random Real Numbers and Lusin's Theorem," 14 March 2024, invited talk at the 17th International Conference on Computability, Complexity and Randomness, Nagoya, Japan.

"Computable Functions on $\mathbb{R}$," 9 November 2023, MathFest, CUNY Graduate Center.

"Computability and the Absolute Galois Group of $\mathbb{Q}$," 4 October 2023, Fifth Workshop on Digitalization and Computable Models, Nazarbayev University, Astana, Kazakhstan. (Talk given remotely.)

"Direct Construction of Scott Ideals," 25 July 2023, contributed talk at the conference *Computability in Europe*, Batumi, Georgia.

"Skolem Functions and Definable Subsets of the Absolute Galois Group of $\mathbb{Q}$," 8 June 2023, contributed talk at the Logic Colloquium, Milano, Italy.

"Computability and the Absolute Galois Group of $\mathbb{Q}$," 28 March 2023, contributed talk at the A.S.L. North American annual meeting, University of California at Irvine.

"Computability and Lusin's Theorem," 4 March 2023, invited talk at the Southeastern Logic Symposium (SEALS), University of Florida, Gainesville, FL.

"Bounded Reductions: Measuring the Failure of Reducibility," 7 November 2022, invited talk in the Workshop on Invariant Descriptive Computability Theory, American Institute of Mathematics, San Jose, CA.

"Forcing in Algebraic Field Extensions of the Rationals," 4 August 2022, invited seminar talk in the program *Decidability, Definability and Computability in Number Theory, part II*, Mathematical Sciences Research Institute, Berkeley, CA.

"Relativizing Computable Structure Theory," 29 July 2022, contributed talk at the Simposio Latino Americano de Lógica Matemática, Universidad de Costa Rica, San Jose de Costa Rica.

"Universal Properties of Differentially Closed Fields," 9 April 2022, invited talk in the Computability Theory Special Session at the ASL Annual Meeting, Cornell University, Ithaca, NY.

"Countable Reductions, Borel Equivalence Relations, and Computable Structure Theory," 8 March 2022, invited hour talk at the workshop *New Directions in Computability Theory*, Centre International de Rencontres Mathématiques, Luminy, France.

"Topological Spaces of Countable Structures," 17 November 2021, short talk in the Dagstuhl Seminar 21461, Descriptive Set Theory and Computable Topology, Schloss Dagstuhl - Leibniz-Zentrum für Informatik GmbH, Germany.

"One Jump Away: Spectra of Differentially Closed Fields," 23 September 2021, invited plenary talk at the Mal'cev Meeting, Sobolev Institute of Mathematics, Novosibirsk, Russia. (Talk given remotely due to the covid-19 pandemic.)

"Computable Procedures for Fields," 5–7 July 2021, three-hour invited tutorial presentation at the conference *Computability in Europe*, Ghent, Belgium. (Talk given remotely due to the covid-19 pandemic.)

"Generic Algebraic Fields," 24 June 2021, contributed talk at the A.S.L. North American annual meeting, Notre Dame University, South Bend, IN. (Talk given remotely due to the covid-19 pandemic.)

"Bounded Reductions Between Equivalence Relations," 18 June 2021, invited talk in the workshop *Equivalences, Numberings, Reducibilities*, a satellite event of the 8th European Congress of Mathematics, Udine, Italy. (Talk given remotely due to the covid-19 pandemic.)

"Generic Algebraic Fields," 27 April 2021, invited talk in the meeting *Computability Theory*, Mathematisches Forschungsinstitut Oberwolfach, Germany. (Talk given remotely due to the covid-19 pandemic.)

"Lusin's Theorem: How Computability Theory Proves a Real-Analysis Result," 14 January 2021, invited address as part of the World Logic Day Workshop, jointly sponsored by the Sobolev Institute of Mathematics (Novosibirsk, Russia) and the Department of Mathematics at Nazarbayev University (Kazakhstan). (Talk given remotely due to the covid-19 pandemic.)

"Computable Structure Theory with Noncomputable Structures," 9 January 2021, ASL invited hour address at the Winter Meeting of the Association for Symbolic Logic, Joint Mathematics Meetings, Washington, DC. (Talk given remotely due to the covid-19 pandemic.)

"Hilbert's Tenth Problem for Subrings of the Rational Numbers," 22 July 2020, Second Workshop on Digitalization and Computable Models, Mathematical Center in Akademgorodok, Sobolev Institute, Russian State University, Novosibirsk, Russia. (Talk given remotely due to the covid-19 pandemic.)

"Non-coding Enumeration Operators," 1 July 2020, contributed talk at the conference *Computability in Europe*, Salerno, Italy. (Talk given remotely due to the covid-19 pandemic.)

"Uniform Computable Categoricity and Scott Families," 29 February 2020, invited talk at the Southeastern Logic Symposium (SEALS), University of Florida, Gainesville, FL.

"Lusin's Theorem: How Computability Theory Proves a Real-Analysis Result," 16 January 2020, invited talk in the *ASL-AMS Special Session on Logic Facing Outwards*, Joint Mathematics Meeting, Denver, CO.

"Essential Lowness of Algebraic Properties," 19 December 2019, invited talk in the *Special Session on Computability and Computer Science*, XVIII Simposio Latino Americano de Lógica Matemática, Universidad de Concepción, Chile.

"A Computability-Theoretic Proof of Lusin's Theorem," 7 December 2019, invited talk in the *Special Session on Computability Theory*, Canadian Mathematical Society Winter Meeting, York University, Toronto, ON.

"Transcendence Bases of Computable Fields," 16 November 2019, invited talk at the New England Recursion & Definability Seminar, Bridgewater State University, Bridgewater, MA.

"Degrees of Transcendence Bases of Computable Fields," 15 September 2019, invited talk in the *Special Session on Computability Theory in Honor of Steffen Lempp's 60th Birthday*, American Mathematical Society sectional meeting, University of Wisconsin-Madison.

"Computable Structure Theory for Models of **ZFC**," 23 July 2019, invited talk in the *Workshop on Computability Theory*, University of Leeds, UK.

"Degree Spectra for Transcendence in Fields," 15 July 2019, contributed talk at the conference *Computability in Europe*, Durham, U.K.

"A Computability-Theoretic Proof of Lusin's Theorem," 8 July 2019, contributed talk at the conference *Computability and Complexity in Analysis*, Zagreb, Croatia.

"Hilbert's Tenth Problem for the Rational Numbers and their Subrings," 29 May 2019, invited hour address in the *38th Journées sur les Arithmétiques Faibles*, C.U.N.Y. Graduate Center, New York, NY.

"Computable Structure Theory and Forcing," 20 May 2019, invited talk in the Special Session on Computability Theory, at the A.S.L. North American annual meeting, C.U.N.Y. Graduate Center, New York, NY.

"HTP-Complete Subrings of $\mathbb{Q}$," 6 May 2019, invited talk in the Workshop on Definability and Decidability Problems in Number Theory, American Institute of Mathematics, San Jose, CA.

"Hilbert's Tenth Problem as an Enumeration Operator," 18 April 2019, invited talk in the *Midwest Computability Seminar*, University of Chicago, Chicago, IL.

"Interpretations between a Field and its Heisenberg Group," 13 April 2019, invited talk in the *Special Session on Computability Theory*, American Mathematical Society sectional meeting, Hartford, CT.

"Hilbert's Tenth Problem for Subrings of the Rational Numbers," 27 February 2019, Math Department Colloquium, University of Notre Dame, South Bend, IN.

"Hilbert's Tenth Problem as a Pseudojump Operator," 17 January 2019, invited talk in the *ASL-AMS Special Session on Definability and Decidability Problems in Number Theory*, AMS-MAA annual joint meeting, Baltimore, MD.

"Model Completeness and Computable Structure Theory," 16 January 2019, invited talk in the *ASL-AMS Special Session on Recent Advances and Trends in Computable Structure Theory (in honor of J. Remmel)*, AMS-MAA annual joint meeting, Baltimore, MD.

"Hilbert's Tenth Problem for Subrings of $\mathbb{Q}$," 21 December 2018, Coloquio del Departamento de Matemática, Universidad de Concepción, Chile.

"A Framework for Random Structures," 18 December 2018, contributed talk in the conference *Computability, Complexity, and Randomness*, Universidad Andrés Bello, Santiago de Chile.

"Measure and Categoricity for Classes of Countable Structures," 19 November 2018, invited plenary talk at the Mal'cev Meeting, Sobolev Institute of Mathematics, Novosibirsk, Russia.

"Hilbert's Tenth Problem for Subrings of the Rational Numbers," 15 November 2018, invited talk at the Kurt Gödel Research Center, Vienna, Austria.

"Hilbert's Tenth Problem for Subrings of the Rational Numbers," 2 November 2018, invited talk in the CUNY Graduate Center *MathFest*.

"Noncomputable Functions and Unsolvable Problems," 21 September 2018, Mathematics Department Seminar, Hofstra University, Hempstead, NY.

"Hilbert's Tenth Problem as a Pseudojump Operator," 26 July 2018, contributed talk at the Logic Colloquium, Udine, Italy.

"Hilbert's Tenth Problem Does Not Respect Turing Equivalence," 17 May 2018, contributed talk at the A.S.L. North American annual meeting, Western Illinois University, Macomb, IL.

"Hilbert's Tenth Problem for Subrings of the Rational Numbers," 2 February 2018, invited talk in the CUNY Graduate Center *MathFest*.

"Classification and Measure for Countable Structures," 11 January 2018, invited talk in the meeting *Computability Theory*, Mathematisches Forschungsinstitut Oberwolfach, Germany.

"Isomorphism and Classification for Countable Structures," 23 November 2017, invited talk at the Kurt Gödel Research Center, Vienna, Austria.

"Classification and Measure for Algebraic Fields," 29 October 2017, invited talk at the New England Recursion & Definability Seminar, Wellesley College, Wellesley, MA.

"Topology of Isomorphism Types of Countable Structures," 18 August 2017, contributed talk at the Logic Colloquium, Stockholm, Sweden.

"Isomorphism and Classification for Countable Structures," 26 June 2017, contributed talk at the meeting *Continuity, Computability, Constructivity – From Logic to Algorithms*, held at LORIA (Laboratoire Lorrain de Recherche en Informatique et Applications), Nancy, France.

"Computable Transformations of Structures," 12 June 2017, invited talk in the Special Session on Computability in Analysis, Algebra, and Geometry, at the conference *Computability in Europe*, Turku, Finland.

"Relatively Simple Sets and Subrings of $\mathbb{Q}$," 11 March 2017, invited talk in the *Special Session on Computability in Algebra and Number Theory*, American Mathematical Society sectional meeting, College of Charleston, Charleston, SC.

"Genericity, Infinitary Interpretations, and Automorphism Groups of Structures," 5 March 2017, invited plenary talk at the Southeastern Logic Symposium (SEALS), University of Florida, Gainesville, FL.

"Hilbert's Tenth Problem in Subrings of the Rationals," 24 October 2016, invited talk in the meeting *Definability and Decidability Problems in Number Theory*, Mathematisches Forschungsinstitut Oberwolfach, Germany.

"Baire Category for Hilbert's Tenth Problem Inside $\mathbb{Q}$," 27 June 2016, contributed talk at the conference *Computability in Europe*, Paris, France.

"Computability Problems in Number Theory," 1 December 2015, Mathematics Department Colloquium, Bronx Community College, Bronx, NY.

"Hilbert's Tenth Problem for Subrings of the Rationals," 4 October 2015, invited talk in the *Special Session on Computability Theory and Applications*, American Mathematical Society sectional meeting, Loyola University, Chicago, IL.

"Degree Spectra of Real Closed Fields," 4 August 2015, contributed talk at the Logic Colloquium, Helsinki, Finland.

"Degree Spectra of Differentially Closed Fields," 9 June 2015, invited talk in the informal workshop *Computability, Probability and Logic* celebrating the dissertation defense of Rutger Kuyper, Radboud University Nijmegen, Holland.

"Hilbert's Tenth Problem for Subrings of the Rationals," 22 April 2015, invited talk in the program *Sets and Computations*, Institute for Mathematical Sciences, National University of Singapore, Singapore.

"Noncomputable Functions and Unsolvable Problems," 7 April 2015, Mathematics Department Colloquium, Swarthmore College.

"Functors and Effective Interpretations in Model Theory," 27 March 2015, plenary talk at the North American Annual Meeting of the Association for Symbolic Logic, University of Illinois, Urbana-Champaign, IL.

"Finitary Reducibility on Equivalence Relations," 28 February 2015, invited special session talk at the Southeastern Logic Symposium (SEALS), University of Florida, Gainesville, FL.

"Computability Theory at Work: Factoring Polynomials and Finding Roots" 17 February 2015, Mathematics Department Colloquium, Recinto Universitario de Mayagüez, Mayagüez, PR.

"Computability Theory at Work: Factoring Polynomials and Finding Roots," 7 August 2014, in the Invited Paper Session *Connections between Logic and Arithmetic Geometry*, MAA MathFest, Portland, OR.

"Coding Graphs into Fields," 14 July 2014, contributed talk at the 2014 *Logic Colloquium*, Technische Universität Wien, Vienna, Austria.

"Functors in Computable Model Theory," invited talk at the *Infinity Workshop*, 10 July 2014, Kurt Gödel Research Center, Vienna, Austria.

"Effective Classification of Computable Structures," 27 June 2014, contributed talk at the conference *Computability in Europe*, Budapest, Hungary.

"Generalizing Turing Machines: ω_1-Computation," 13 May 2014, invited talk in the 2nd Workshop of the *Turing Centenary Research Project: Mind, Mechanism, and Mathematics*, Columbia University, New York, NY.

"Spectra of Differentially Closed Fields," 30 March 2014, invited address at the New England Recursion & Definability Seminar, Olin College, Needham, MA.

"The Theory of Fields is Complete for Isomorphisms," 7 November 2013, invited talk in the Workshop on Computable Model Theory, Banff International Research Station, Banff, AB, Canada.

"Effective Classification of Computable Structures," 19 October 2013, invited talk in the *Special Session on Computability Across Mathematics*, American Mathematical Society sectional meeting, Washington University, St. Louis, MO.

"Using the Jump to Address Undecidability," 9 September 2013, invited talk in the Workshop on Definability and Decidability Problems in Number Theory, American Institute of Mathematics, Palo Alto, CA.

"Local Computability and Computable Simulations," 13 August 2013, invited talk in the Workshop on Computability and Stability Theory, American Institute of Mathematics, Palo Alto, CA.

"Local Computability and the Ordinal $\omega_1^{CK}\cdot\omega$," 11 July 2013, Sy David Friedman's 60th Birthday Conference, Kurt Gödel Research Center, Vienna, Austria.

"Local Computability for Ordinals," 2 July 2013, contributed talk at the conference *Computability in Europe*, Università di Milano-Bicocca, Milan, Italy.

"Constraint Sets in Differential Fields," 10 May 2013, invited talk in the Special Session on Computable Structure Theory and Computable Model Theory, at the A.S.L. North American annual meeting, University of Waterloo, Waterloo, ON.

"Independent Sets in Computable Free Groups and Fields," 9 January 2013, invited talk in AMS special session of the AMS-MAA annual joint meeting, San Diego, CA.

"Bases in Computable Free Groups and Fields," 27 November 2012, Queens College Mathematics Department Colloquium, Flushing, NY.

"Computable and Finitary Reducibility on Equivalence Relations," 28 October 2012, invited address at the New England Recursion & Definability Seminar, Wellesley College, Wellesley, MA.

"Finitary Reducibility on Equivalence Relations," 19 June 2012, contributed talk at the conference *Computability in Europe*, Cambridge University, United Kingdom.

"Automorphism Groups of Computable Structures," 13 May 2012, invited talk in the conference *Definability and Computable Structures*, Chicago, IL.

"Measuring the Difficulty of Algebraic Questions," 27 April 2012, invited talk, Beijing Normal University, China.

"Computability in Analysis and Algebra," 18 April 2012, Mathematical Sciences Department Colloquium, Nanyang Technological University, Singapore.

"Computable Fields and their Algebraic Closures," 4 April 2012, invited talk, National University of Singapore.

"Computable Differential Fields," 10 February 2012, invited talk in the meeting *Computability Theory*, Mathematisches Forschungsinstitut Oberwolfach, Germany.

"Computability Questions about Fields," 24 January 2012, invited talk in the programme *Semantics and Syntax: A Legacy of Alan Turing* at the Isaac Newton Institute, Cambridge University, United Kingdom.

"Computable Categoricity, Fields, and Automorphism Groups," 15 January 2012, invited address at the *Alan Turing Centenary* conference, Florida Atlantic University, Boca Raton, FL.

"Exploring Effectiveness in Differential Fields," 23 September 2011, Kolchin Seminar in Differential Algebra, C.U.N.Y. Graduate Center, New York, NY.

"Local Computability and Uncountable Structures," 21 July 2011, invited talk at the *Infinity Conference*, Centre de Recerca Mathematica, Barcelona, Catalunya, Spain.

"The Complexity of Computable Categoricity for Algebraic Fields," 11 July 2011, contributed talk at the Logic Colloquium, Barcelona, Catalunya, Spain.

"Adapting Rabin's Theorem for Differential Fields," 28 June 2011, invited talk in the Special Session on Computability in Analysis, Algebra, and Geometry, at the conference *Computability in Europe*, Sofia University, Sofia, Bulgaria.

"Fields and Computable Categoricity," 7 June 2011, Infinity Seminar, Centre de Recerca Mathematica, Barcelona, Catalunya, Spain.

"Noncomputable Functions and Undecidable Sets," 7 April 2011, Mathematics Colloquium, University of Portland.

"Noncomputable Functions and Undecidable Sets," 30 March 2011, Mathematics Colloquium, University of San Francisco.

"Boolean Subalgebras and Computable Copies," 25 March 2011, contributed talk at the annual meeting of the Association for Symbolic Logic, University of California, Berkeley, CA.

"Algebraic Fields and Computable Categoricity," 27 July 2010, contributed talk at the Logic Colloquium, Paris, France.

"Factoring Polynomials and Finding Roots," 20 July 2010, Real Computation and BSS Complexity Meeting, Institut für Mathematik und Informatik, Universität Greifswald, Germany.

"Computable Fields and their Algebraic Closures," 13 July 2010, Technische Universität, Darmstadt, Germany.

"Computable Fields and their Algebraic Closures," 6 July 2010, invited talk in the Workshop on Computability Theory 2010, Universidade dos Açores, Ponta Delgada, Portugal.

"The Cardinality of an Oracle in BSS-Computation," 23 June 2010, contributed talk at the *Seventh International Conference on Computability and Complexity in Analysis*, Zhenjiang, China.

"Comparing Free Abelian Groups and Purely Transcendental Fields," 23 May 2010, invited talk in the Special Session on Groups, Computations, and Applications, American Mathematical Society sectional meeting, New Jersey Institute of Technology, Newark, NJ.

"BSS-Reducibility and Algebraic Real Numbers," 17 March 2010, contributed talk at the annual meeting of the Association for Symbolic Logic, George Washington University, Washington, DC.

"Noncomputable Functions in the Blum-Shub-Smale Model," 18 February 2010, contributed talk at the workshop *Logical Approaches to Barriers in Computing and Complexity*, Alfried Krupp Wissenschaftskolleg, Greifswald, Germany.

"Difficulty of Factoring Polynomials and Finding Roots," 25 January 2010, Pure Maths Department Colloquium, University of Waterloo, Waterloo, ON.

"Real Computability and Roots of Polynomials," 30 October 2009, invited talk in the Special Session on Constructive Mathematics, American Mathematical Society sectional meeting, Florida Atlantic University, Boca Raton, FL.

"Is it Harder to Factor a Polynomial or to Find a Root?" 23 September 2009, Queens College Mathematics Department Colloquium, Flushing, NY.

"Real Computable Manifolds and Homotopy Groups," 10 September 2009, contributed talk at the Eighth International Conference on Unconventional Computation, Universidade dos Açores, Ponta Delgada, Portugal.

"BSS Machines: Computability without Search Procedures," 19 August 2009, at the Second CUNY Workshop on Effective Mathematics of the Uncountable, CUNY Graduate Center, New York.

"Survey of Degree Spectra of High$_n$ and Non-low$_n$ Degrees," 31 July 2009, contributed talk at the European summer meeting of the Association for Symbolic Logic, Sofia, Bulgaria.

"Spectra of Algebraic Fields and Subfields," 20 July 2009, invited talk in the Special Session on Computational Model Theory at the Computability in Europe conference, Ruprecht-Karls-Universität Heidelberg, Germany.

"Computably Categorical Fields via Fermat's Last Theorem," 22 May 2009, invited talk in the Computability Theory Special Session at the ASL Annual Meeting, Notre Dame University, South Bend, IN.

"Difficulty of Factoring Polynomials and Finding Roots," 14 April 2009, Mathematics Department Colloquium, Murray State University, Murray, KY.

"Difficulty of Factoring Polynomials and Finding Roots," 14 January 2009, Mathematics Department Colloquium, East Carolina University, Greenville, NC.

"Real Computability and Manifolds," 8 January 2009, invited talk in the Special Session on Orderings in Logic and Topology, American Mathematical Society national meeting, Washington, DC.

"Spectra of Algebraic Fields," 12 October 2008, invited talk in the Special Session on Computability Theory and Effective Algebra, American Mathematical Society sectional meeting, Wesleyan University, Middletown, CT.

"Stream-Computable Structures," 22 August 2008, contributed talk at the First CUNY Workshop on Effective Mathematics of the Uncountable, CUNY Graduate Center, New York.

"Local Computability," 20 August 2008, at the First CUNY Workshop on Effective Mathematics of the Uncountable, CUNY Graduate Center, New York.

"Automorphism Spectra and Tree-Definability," 3 July 2008, contributed talk at the European summer meeting of the Association for Symbolic Logic, Bern, Switzerland.

"Perfect Local Computability and Computable Simulations," 18 June 2008, contributed talk at the Computability in Europe conference, National and Kapodistrian University of Athens, Greece.

"The Degree of Categoricity for an Algebraic Number Field," 8 January 2008, contributed talk at the annual meeting of the Association for Symbolic Logic, San Diego, CA.

"Algorithms on Computable Fields," 30 October 2007, Mathematics Department Colloquium, Bronx Community College, Bronx, NY.

"Local Computability and Uncountable Structures," 13 September 2007, Computer Science Department Colloquium, University of Western Ontario, London, ON.

"The Complexity of Quickly ORM-Decidable Sets," 22 June 2007, contributed talk at the Computability in Europe conference, Universitá di Siena, Italy.

"Locally Computable Structures," 21 June 2007, contributed talk at the Computability in Europe conference, Universitá di Siena, Italy.

"Post's Problem for Ordinal Register Machines," 19 June 2007, contributed talk at the Computability in Europe conference, Universitá di Siena, Italy.

"Computable Model Theory and Differential Algebra," 12 April 2007, invited tutorial at DART II, the Second International Workshop and AMS Special Session on Differential Algebra and Related Topics, Rutgers University at Newark, NJ.

"Computable Model Theory and Differential Algebra," three parts: 16, 23, 30 March 2007, Kolchin Seminar in Differential Algebra, C.U.N.Y. Graduate Center, New York, NY.

"Post's Problem for Ordinal Register Machines," 25 January 2007, invited talk at the Bonn International Workshop on Ordinal Computability, Rheinische Friedrich-Wilhelms-Universität Bonn, Germany.

"Automorphism Spectra of Computable Structures," 28 October 2006, invited talk in the "Special Session on Computability Theory in Honor of Manuel Lerman's Retirement," American Mathematical Society sectional meeting, Storrs, CT.

"Noncomputable Sets and Unsolvable Problems," 26 October 2006, Mathematics Department Colloquium, New York City College of Technology, Brooklyn, NY.

"Computable Categoricity and Fields," 31 July 2006, contributed talk at the European summer meeting of the Association for Symbolic Logic, Nijmegen, Netherlands.

"Infinite-Time Computable Model Theory," 20 May 2006, contributed talk at the Association for Symbolic Logic annual meeting, Montréal, QC.

"Hrushovski's Proof of the Mordell-Lang Conjecture, Part 2: Differential Algebra," 18 March 2006, Kolchin Seminar in Differential Algebra, Hunter College, New York, NY, two-part joint talk with Prof. Hans Schoutens.

"Spectra of Turing Degrees," 15 January 2006, invited hour address at the Winter Meeting of the Association for Symbolic Logic, Joint Mathematics Meetings, San Antonio, TX.

"Coding Information into Structures," 29 October 2004, Mathematics Department Colloquium, George Washington University, Washington, DC.

"Spectra of Relations on the Random Graph," 24 October 2004, invited talk in the special session "Computability theory and applications," at the American Mathematical Society sectional meeting, Evanston, IL.

"The Curious Case of Order-Computable Sets," 21 May 2004, contributed talk at the Association for Symbolic Logic annual meeting, Pittsburgh, PA.

"Computably Universal Structures," 6 March 2004, invited address at the Mid-Atlantic Mathematical Logic Seminar spring meeting, Hofstra University, Hempstead, NY.

"Computable Categoricity of Trees II," 23 June 2003, invited talk at the Workshop on Computability and Logic, Ruprecht-Karls-Universität Heidelberg, Germany.

"Spectra of Structures and Relations," 3 June 2003, special session of the Association for Symbolic Logic annual meeting, Chicago, IL.

"Characterizing Computability Through Model Theory," 18 March 2003, Mathematics Department Colloquium, Western Illinois University, Macomb, IL.

"Characterizing Computability Through Model Theory," 24 February 2003, Mathematics Department Colloquium, Queens College - C.U.N.Y.

"Characterizing Computability Through Model Theory," 21 February 2003, Mathematics Department seminar, University of Massachusetts - Boston.

"Undecidability of Lattices of Ideals in $\mathcal{R}$," 15 January 2003, invited talk in special session of the American Mathematical Society annual meeting, Baltimore, MD.

"Characterizing Computability through Model Theory," 18 October 2002, Mathematics Department Colloquium, George Washington University, Washington, DC.

"Computably Categorical Trees of Finite Height II," 6 January 2002, invited talk in special session of the American Mathematical Society annual meeting, San Diego, CA.

"Definable Incompleteness and Friedberg Splittings," 10 March 2001, contributed talk at the annual meeting of the Association for Symbolic Logic, Philadelphia, PA.

"The Computable Dimension of Trees of Height ω," 11 January 2001, contributed talk at the winter meeting of the Association for Symbolic Logic, New Orleans, LA.

"Noncomputable Sets and Unsolvable Problems," 9 September 1999, Mathematics Department Colloquium, City College of New York, New York, NY.

"The Δ_2^0-Spectrum of a Linear Order," 13 March 1999, invited talk in special session of the American Mathematical Society sectional meeting, University of Florida, Gainesville, FL.

Principal Research Visits:

Invited participant in the rescheduled meeting *A Convergence of Computable Structure Theory, Computable Analysis, and Randomness*, Banff International Research Station, Banff, AB, Canada, 20-24 March 2023.

Invited participant in the workshop *Invariant Descriptive Computability Theory*, American Institute of Mathematics, San Jose, CA, 7–11 November 2022.

Membership in the microprogram *Decidability, Definability and Computability in Number Theory, Part 2*, July 18–August 12, 2022, at the Mathematical Sciences Research Institute, Berkeley, CA.

Invited participant in the workshop *New Directions in Computability Theory*, Centre International de Rencontres Mathématiques, Luminy, France, 7–11 March 2022, by invitation.

Invited participant in Dagstuhl Seminar 21461, Descriptive Set Theory and Computable Topology, Schloss Dagstuhl - Leibniz-Zentrum für Informatik GmbH, 14–19 November 2021, by invitation.

Invited participant in the Computability Theory meeting, Mathematisches Forschungsinstitut Oberwolfach, 25 April–1 May 2021, by invitation. (Hybrid meeting, due to the coronavirus pandemic.)

Research Professorship in the semester-long program *Decidability, Definability and Computability in Number Theory*, August 17 – December 18, 2020, at the Mathematical Sciences Research Institute, Berkeley, CA. (Program revamped and held online, due to the coronavirus pandemic.)

Visiting Scholar at the University of California – Berkeley, Autumn 2020, remotely.

Invited participant in the meeting *A Convergence of Computable Structure Theory, Computable Analysis, and Randomness*, Banff International Research Station, Banff, AB, Canada, 17–22 May 2020. (Meeting canceled due to the coronavirus pandemic.)

Dagstuhl Seminar 20161, Descriptive Set Theory and Computable Topology, Schloss Dagstuhl - Leibniz-Zentrum für Informatik GmbH, 13–17 April 2020, by invitation. (Seminar canceled due to the coronavirus pandemic.)

Research visit to the Korea Advanced Institute of Science and Technology, Daejeon, South Korea, April 5–12, 2020. (Visit canceled due to the coronavirus pandemic.)

Invited research visit to Pennsylvania State University, State College, PA, September 29–October 2, 2019.

Invited research visit to Wellesley College, Wellesley, MA, June 26–29, 2019.

Invited participant in the workshop *Definability and Decidability Problems in Number Theory*, American Institute of Mathematics, San Jose, CA, 6–10 May 2019.

Invited research visit to Notre Dame University, South Bend, IN, 17–27 February 2019.

Research visit to the Kurt Gödel Research Center and the Technische Universität Wien, Vienna, Austria, 11–15 November 2018.

Participant in the workshop on computable structure theory, Sofia University, 5–11 August 2018.

Computability Theory meeting, Mathematisches Forschungsinstitut Oberwolfach, 7–13 January 2018, by invitation.

Research visit to the Kurt Gödel Research Center, Vienna, Austria, 20–24 November 2017.

Dagstuhl Seminar 17081, Computability Theory, Schloss Dagstuhl - Leibniz-Zentrum für Informatik GmbH, 19–24 February 2017, by invitation.

Definability and Decidability Problems in Number Theory meeting, Mathematisches Forschungsinstitut Oberwolfach, 23–29 October 2016, by invitation.

Sobolev Institute of Mathematics, Novosibirsk, 13-20 June 2015, by invitation of the Siberian Branch of the Russian Academy of Sciences.

Invited participant in the program *Sets and Computations*, 19-30 April 2015, Institute for Mathematical Sciences, National University of Singapore, Singapore.

Invited participant in the *Infinity Workshop*, 9–11 July 2014, Kurt Gödel Research Center, Vienna, Austria.

Invited participant in the meeting *Computable Model Theory*, Banff International Research Station, Banff, AB, Canada, 3–8 November 2013.

Invited participant in the workshop *Definability and Decidability Problems in Number Theory*, American Institute of Mathematics, Palo Alto, CA, 9–13 September 2013.

Invited participant in the workshop *Computable Stability Theory*, American Institute of Mathematics, Palo Alto, CA, 12–16 August 2013.

Invited participant in *Sy-David Friedman's 60th Birthday Conference*, 8–12 July 2013, Kurt Gödel Research Center, Vienna, Austria.

Sabbatical research visit to the Kurt Gödel Research Center, Vienna, Austria, 2–16 July 2012, supported by the European Science Foundation.

Invited participant in the meeting *The Incomputable*, Chicheley Hall, Newport Pagnell, United Kingdom, 12–16 June 2012, co-sponsored by the Templeton Foundation and the Kavli Royal Society.

Invited participant in the meeting *Definability in Computable Structures*, Chicago, IL, 12–17 May 2012, by invitation of the organizers A. Kach, J.F. Knight, & A. Montalbán, supported by the Packard Foundation.

Sabbatical research visit to Beijing Normal University, Beijing, China, 24–30 April 2012, by invitation of Prof. Bie Rongfei.

Sabbatical research visit to Nanyang Technological University, Singapore, 31 March–23 April 2012, by invitation of Prof. Wu Guohua.

Computability Theory meeting, Mathematisches Forschungsinstitut Oberwolfach, 5–11 February 2012, by invitation.

Visiting Fellow of the Isaac Newton Institute, Cambridge University, 19 January - 2 February & 12-26 February 2012, for the programme *Semantics and Syntax: A Legacy of Alan Turing*.

Invited Research Visitor, The Infinity Project, Centre de Recerca Matemática, Barcelona, Catalunya, Spain, 30 May – 11 June, 2011, supported by the Templeton Foundation.

Sabbatical research visits to Prof. Reed Solomon & Asher Kach, University of Connecticut; Prof. Jennifer Chubb, University of San Francisco; Prof. Charles McCoy, University of Portland; Dr. Sam Coskey, Fields Institute, Toronto; Profs. Marcia Groszek, Rebecca Weber, & Johanna Franklin, Dartmouth University; and Prof. Wesley Calvert, Southern Illinois University, Spring 2011.

Kurt Gödel Research Center, Vienna, Austria, 26-29 July 2009, by invitation of Dr. Ekaterina Fokina.

East Carolina University, Greenville, NC, 11-17 January 2009, by invitation of Prof. Alexandra Shlapentokh.

Sobolev Institute of Mathematics, Novosibirsk, 17-25 July 2008, by invitation of the Siberian Branch of the Russian Academy of Sciences.

Department of Algebra and Mathematical Logic, Kazan State University, Kazan, Tatarstan, 8-16 July 2008, by invitation of the Chebotarev Research Institute.

Hausdorff Institut, 20-25 November & 6-16 December 2007, Rheinische Friedrich-Wilhelms-Universität Bonn, by invitation of Prof. Dr. Peter Koepke.

Bonn International Workshop on Ordinal Computability, 23-25 January 2007, Rheinische Friedrich-Wilhelms-Universität Bonn, by invitation.

Sobolev Institute of Mathematics, Novosibirsk, 8-23 July 2006, by invitation of the Siberian Branch of the Russian Academy of Sciences, supported by PSC-CUNY Research Award # 67182-00-36.

Workshop on Computability and Logic, Universität Heidelberg, 23-27 June 2003, by invitation.

Sobolev Institute of Mathematics, Novosibirsk, 22-31 July 2002, by invitation of the Siberian Branch of the Russian Academy of Sciences, supported by NSF grant # 0075899.

Computability Theory meeting, Mathematisches Forschungsinstitut Oberwolfach, 21-27 January 2001, by invitation.

Teaching:

Online mini-course *Applying Topology to Spaces of Countable Structures* taught virtually at the Mathematical Sciences Research Institute, Sept.-Oct. 2020, as part of the program *Decidability, definability and computability in number theory: Part 1 - Virtual Semester.*

Advisor for Ph.D. student Rebecca M. Steiner (doctorate received 2012 from the CUNY Graduate Center.)

Doctoral courses taught at CUNY Graduate Center:

Math 71300, *Topics in Logic*, Spring 2021.

Math 71200, *Mathematical Logic II*: Spring 2020, Spring 2016, Spring 2015, Spring 2009, Spring 2007, Spring 2005.

Computer Science 85020, *Topics in Theoretical Computer Science: Introduction to Computability Theory*: Autumn 2013, Autumn 2011, Autumn 2008, Autumn 2006.

Nominated for *President's Award for Excellence in Teaching by Full-Time Faculty*, Queens College, 2006.

Service Activities:

Mathematics Community:

Co-Secretary-Treasurer of the Association for Symbolic Logic, 2018–present.

Editorial Board member for the journal *Computability*, 2011-present.

Steering Committee member for the Association Computability in Europe, 2020–present.

Member of the Scientific Committee for the 2024 *Simposio Latino Americano de Lógica Matemática* in Piriapolis, Uruguay.

Member of the Programme Committee for the 2022 *Logic Colloquium*, 27 June - 1 July 2022 in Reykjavik, Iceland.

Co-organizer of the semester-long program *Decidability, Definability and Computability in Number Theory*, August 17 – December 18, 2020, at the Mathematical Sciences Research Institute, Berkeley, CA. (Program was moved online in response to the coronavirus pandemic; we then co-organized a microprogram on this topic at MSRI on July 18 – August 12, 2022.)

Member of the Appointment Advisory Committee for the promotion of Sebastiaan Terwijn to Associate Professor, Radboud University Nijmegen, the Netherlands, 2022.

Member of the Programme Committee for the Summer 2022 *Workshop on Digitalization and Computable Models* in Novosibirsk, Russia.

Member of the Programme Committees for the Summer 2022 and Spring 2020 *Mal'cev Meetings* in Novosibirsk, Russia.

Co-organizer of the *AMS-ASL Joint Special Session: Logic Facing Outwards* at the Joint Mathematics Meetings, January 15-18, 2020, Denver, CO.

Member of the Programme Committee for the 2019 *Logic Colloquium*, 11-16 August 2019 in Prague, Czech Republic.

Invited Co-Chair of the Programme Committee for the 2018 meeting of *Computability in Europe*, June 2018 in Kiel, Germany.

Member of the Programme Committee for the 2017 meeting of *Computability in Europe*, 12-16 June 2017 in Turku, Finland.

Co-organizer of the *Special Session on Computability Theory: Pushing the Boundaries* at the AMS Sectional Meeting, May 6-7, 2017, Hunter College-CUNY, New York, NY.

Invited co-chair of the *Special Session on Computable Structures* at the ASL North American Annual Meeting, Boise State Univ., Boise, Idaho, 19-23 March 2017.

Co-organizer of the *Special Session on Computability in Algebra and Number Theory* at the AMS Sectional Meeting, March 10-12, 2017, College of Charleston, Charleston, SC.

Invited co-chair of the *Special Session on Computability Theory* at Logic Colloquium 2015 in Helsinki, Finland.

Member of the Programme Committee for the 2015 meeting of *Computability in Europe*, 29 June - 3 July 2015 in Bucharest, Romania.

Co-organizer of the *Special Session on Computable Structure Theory* at the AMS Sectional Meeting, March 7-8, 2015, Georgetown University, Washington, DC.

Member of the Programme Committee for the 2014 *Workshop on Logic, Language, Information and Computation* (WoLLIC), 1–4 September 2014 at the Universidad Técnica Federico Santa María, Valparaiso, Chile.

Co-organizer of the *Special Session on Recursion and Definability* at the AMS Sectional Meeting, April 6-7, 2013, Boston College, Chestnut Hill, MA.

Co-organizer of the special session *Computable Mathematics, in honor of Alan Turing* at the AMS Sectional Meeting, March 17-18, 2012, George Washington University, Washington, DC.

Member of the Programme Committee for the 2010 meeting of *Computability in Europe*, 30 June – 4 July 2010 in Ponta Delgada, the Azores, Portugal.

Organizing Committee member for the following meetings and conferences:

Mid-Atlantic Mathematical Logic Seminar meeting, CUNY Graduate Center, 9-10 March 2012.

Computability Theory and Applications: A meeting in honor of Robert I. Soare, University of Chicago, 14-15 May 2011.

CUNY Workshops on Effective Mathematics of the Uncountable, CUNY Graduate Center, 18-22 August 2008 & 17-21 August 2009.

Topics in Computability: A meeting in honor of Richard Shore, Massachusetts Institute of Technology, 21-22 January 2007.

Stanley Tennenbaum Memorial Logic Conference, for the Mid-Atlantic Mathematical Logic Seminar, CUNY Graduate Center, 7 April 2006.

Referee for book proposals to the series *Perspectives in Logic*, published by Cambridge University Press for the Association of Symbolic Logic.

Referee for article submissions to:

Annals of Pure and Applied Logic

American Mathematical Monthly

Archive for Mathematical Logic

Fundamenta Mathematicae

International Journal of Algebra and Computation

Israel Journal of Mathematics

Journal of Algebra

Journal of Logic and Computation

Journal of Symbolic Logic

Logical Methods in Computer Science

Mathematical Logic Quarterly

Notre Dame Journal of Formal Logic

Proceedings of the American Mathematical Society

Proceedings of the London Mathematical Society

Transactions of the American Mathematical Society

Referee for abstracts/chapters submitted to conferences, proceedings volumes, and subsequent special issues and books:

Proceedings, *Computability in Europe*, Batumi, Georgia, July 2023.

Proceedings, *Computability in Europe*, Swansea, UK, July 2022.

Panhellenic Logic Symposium, Volos, Greece, July 2022.

Proceedings, *Logic in Computer Science*, online from Rome, Italy, July 2021.

Proceedings, *Computability in Europe*, online from Salerno, Italy, July 2020.

Proceedings, *Computability in Europe*, Durham, UK, July 2019.

Proceedings, *Logic in Computer Science*, Kyoto, Japan, July 2015.

Proceedings, *Computability in Europe*, Bucharest, Romania, June 2015.

Proceedings, *Computability in Europe*, Budapest, Hungary, July 2014.

Post-proceedings, *Continuity, Computability, Constructivity: From Logic to Algorithms*, Swansea, U.K., 2013.

The Incomputable, eds. S.B. Cooper & M. Soskova, book following the meeting *The Incomputable* at Chicheley Hall, June, 2012.

Proceedings, *Computability in Europe*, Milano, Italy, July 2013.

Proceedings, *Computability in Europe*, Ponta Delgada, Portugal, July 2010.

Proceedings, *Computability in Europe*, Heidelberg, Germany, July 2009.

Proceedings, *Theory of Models and Computation*, Xi'an, China, April 2008.

Proceedings, *Computability in Europe*, Siena, Italy, June 2007.

Computability in Context: Computation and Logic in the Real World (book following the 2007 meeting of *Computability in Europe*).

Reviewer of research grant and conference proposals submitted to:

National Science Foundation.

Banff International Research Station, Canada.

Marsden Fund, Royal Society of New Zealand.

National Research and Development Agency (ANID) of the Ministry of Science, Technology, Knowledge and Innovation, Chile.

Member of dissertation committees for doctoral students:

Ben Goodman (CUNY Graduate Center, April 2024).

Eoin Moore (CUNY Graduate Center, August 2023).

Ilia Ilmer (CUNY Graduate Center, Ph.D. Program in Computer Science, March 2023).

Peter Thompson (CUNY Graduate Center, April 2019).

Athar Abdul-Quader (CUNY Graduate Center, May 2017).

Rutger Kuyper (Radboud University Nijmegen, the Netherlands, June 2015).

Leah Marshall (George Washington University, May 2015).

Victor Ocasio Gonzalez (Notre Dame University, April 2014).

Steven VanDenDriessche (Notre Dame University, March 2013).

Whanki Li (CUNY Graduate Center, November 2012).

Rebecca M. Steiner (CUNY Graduate Center, March 2012; chair).

Shenling Wang (Nanyang Technological University, Singapore, October 2011).

Co-examiner in master's oral exams, University of Waterloo, 15 & 16 August 2016.

Temporary appointment to the Graduate Faculty of Florida Atlantic University, 2014-2019, to serve on thesis committees.

Mathematics at CUNY:

Lead organizer of the CUNY Logic Workshop, 2008-10, 2012-present.

Member of the Mathematics Department Personnel & Budget Committee, Queens College, CUNY, 2008-09, 2014-17, 2020-26.

PSC-CUNY Research Foundation Mathematics Panel member, 2003-04, 2009-10, 2013-14, 2020-21, 2021-22, 2022-23, 2023-24.

Chair, Mathematics Department Self-Study, Queens College, CUNY, 2015-17.

Chair, Mathematics Department Search Committee, Queens College, CUNY, 2013-14.

CUNY Graduate Center Logic Qualifying Exam committee chairperson, 2007, 2015, 2016, 2020, 2021, 2023; committee member, 2005, 2009, 2010, 2017, 2022, 2024.

Mathematics Department Delegate, Academic Senate of Queens College, 2006-07, 2008-10, 2012-14; alternate 2014-19.

Mentor for new faculty, Mathematics Department, Queens College, 2008-09.

Reviewer of research grant proposals submitted to the CUNY Community College Collaborative Incentive Research Grants Program.

General CUNY Service:

Member, Faculty Interview Subcommittee, as part of the Search Committee for the new Queens College President, Spring 2014.

Member, Mathematics & Natural Sciences Research Enhancement Committee, Queens College, 2011–2015.

Member, CUNY Pathways Project Working Committee, Autumn 2011.

Member, Evaluation Committee for the President's Grants for Innovative Teaching Projects, Queens College, Spring 2009, Spring 2010.

Panelist, Faculty Workshop for Submission of External Funding Proposals, Queens College, 31 March 2009.

Past, Current, and Pending Support:

National Science Foundation Division of Mathematical Sciences Foundations Program award #2348891 *Computability and the Absolute Galois Group of the Rational Numbers*, funded at \$195,000 for 9/1/2024 - 8/31/2027.

Simons Foundation Collaboration Grants for Mathematicians proposal # MP-TSM-00007933, *Computability for Galois Groups of Field Extensions*, proposed at \$42,000 for 9/1/2024–8/31/2029, pending.

National Science Foundation Division of Mathematical Sciences Foundations Program proposal # DMS-2414907, *Travel Awards to Attend the Twentieth Latin American Symposium on Mathematical Logic*, proposed at $40,000 for 6/1/2024–5/31/2025. Status: recommended for funding.

PSC-CUNY Research Award proposal #TRADB-55-61 *Computability Theory for Galois Groups*, proposed at $4512 for 7/1/2024–6/30/2025, pending.

Simons Foundation Collaboration Grants for Mathematicians, award #581896, *Computability Theory Throughout Mathematics*, funded at $42,000 for 9/1/2018–8/31/2023.

PSC-CUNY Research Award #66379-00 54 *Computability Theory and the Absolute Galois Group of* $\mathbb{Q}$, funded at $4551 for 2023–24.

National Science Foundation Division of Mathematical Sciences Foundations Program award # DMS-2212620, *Travel Awards to Attend the Nineteenth Latin American Symposium on Mathematical Logic*, funded at $27,000 for 4/14/2022–9/30/2024.

PSC-CUNY Research Award #63482-00 51, *Type-2 Computability Throughout Mathematics*, funded at $4551 for 2020–21.

National Science Foundation Division of Mathematical Sciences Foundations Program award # DMS-1935558, *Student Travel Awards to Attend the North American Annual and European Summer Meetings of the ASL*, funded at $130,000 for 1/1/2020–12/31/2024.

National Science Foundation Division of Mathematical Sciences Foundations Program award # DMS-1947015, *Travel Awards to Attend the Eighteenth Latin American Symposium on Mathematical Logic*, funded at $21,600 for 11/15/2019 - 10/31/2020, with no-cost extension to 10/31/2021.

PSC-CUNY Research Award #62518-00 50, *Hilbert's Tenth Problem as an Enumeration Operator*, funded at $4530 for 2019-20.

National Science Foundation Division of Mathematical Sciences Foundations Program award # DMS-1317262 *Student Travel Awards to Attend the North American Annual and European Summer Meetings of the ASL*, funded at $125,000 for 6/1/2013 - 5/31/2018, with no-cost extension to 5/31/2022. (Principal Investigators: Charles Steinhorn 6/1/2013 - 6/28/2018; Russell Miller 6/29/2018 - 5/31/2022.)

National Security Agency proposal *Connections for Women: Definability and Computability in Number Theory* for a workshop at the Mathematical Sciences Research Institute, Berkeley, CA in August 2020, funded at $15,750 with co-PI's Hélène Barcelo and Valentina Harizanov. (Workshop canceled and grant returned, due to the covid-19 pandemic.)

National Science Foundation Division of Mathematical Sciences Foundations Program award #DMS - 1834219, *Mid-Atlantic Mathematical Logic Seminar*, funded at $55,944 for 9/1/2018 - 8/31/2021. with no-cost extensions to 8/31/2024.

National Science Foundation Division of Mathematical Sciences Foundations Program award #DMS - 1362206, *Computability Theory, Facing Outwards*, funded at $112,299 for 8/15/2014 - 7/31/2018.

PSC-CUNY Research Award # 60570-00 48, *Computability Theory in a Noncomputable World*, funded at $4530 for 2017-18.

Queens College Research Enhancement Program Award, *Computability Theory in a Noncomputable World*, funded at $5000 for 2017.

National Science Foundation Division of Mathematical Sciences Foundations Program award #DMS - 1600625, *Collaboration in Computability*, for collaboration between U.S., Russian, and Bulgarian computability theorists, joint with many other researchers, funded at $100,000 for 5/1/2016 - 4/30/2019, with no-cost extension to 4/30/2022. Principal Investigator: Prof. Julia Knight, University of Notre Dame.

PSC-CUNY Research Award # 69629-00 47, *Hilbert's Tenth Problem for Subrings of the Rationals*, funded at $4470 for 2016-17.

PSC-CUNY Enhanced Research Award # 67839-00 45, *Computability Theory and Hilbert's Tenth Problem*, funded at $10,518 for 2014-15.

Simons Foundation Collaboration Grants for Mathematicians award # 316133, *Computability Theory Throughout Mathematics*, funded at $35,000 for 2014-19, but declined in deference to other grants.

PSC-CUNY Research Award #66582-00 44, *Computable Differentially Closed Fields*, funded at $3990 for 2013-14.

Queens College Research Enhancement Program Award, *Computable Fields and Hilbert's Tenth Problem*, funded at $6262 for 2012.

European Science Foundation Short Visit Grant, for research visit to the Kurt Gödel Research Center, Vienna, Austria, funded at €1775 for 2012.

National Science Foundation Division of Mathematical Sciences Foundations Program, *Collaboration in Computability – Bulgarian Supplement*, for collaboration between U.S., Russian, and Bulgarian computability theorists, joint with many other researchers, funded at $20,000 for 5/1/2012 - 4/30/2015, with no-cost extension to 4/30/2016.

National Science Foundation Division of Mathematical Sciences Foundations Program award #DMS - 1101123, *Collaboration in Computability*, for collaboration between U.S. and Russian computability theorists, joint with many other researchers, funded at $82,500 for 5/1/2011 - 4/30/2014, with no-cost extension to 4/30/2016.. Principal Investigator: Prof. Julia Knight, University of Notre Dame.

PSC-CUNY Research Award #64229-00 42, *Computable Fields*, funded at $3500 for 2011-12.

National Science Foundation Division of Mathematical Sciences Foundations Program award #DMS - 1001306, *Computability Theory, Facing Outwards*, funded at $107,198 for 6/1/2010-5/31/2014.

PSC-CUNY Research Award #63286-00 41, *Fields and Computable Categoricity*, funded at $3325 for 2010-11.

PSC-CUNY Research Award #62632-00 40, *Computable Fields and Transcendence Degree*, funded at $2960 for 2009-10.

Queens College Research Enhancement Program Award #90927-08 08, *Effective Mathematics and Uncountable Structures*, funded at $6200 for 2009.

PSC-CUNY Research Award #61467-00 39, *Computability and Fields*, funded at $3525 for 2008-09.

Templeton Foundation grant #13397, *Effective Mathematics of the Uncountable*, joint with N. Greenberg, J. Hamkins, & D. Hirschfeldt, for the program *Exploring the Infinite Phase I: Mathematics and Mathematical Logic*, funded at $98,258.60 for 2008-10.

PSC-CUNY Research Award #69723-00 38, *Locally Computable Structures*, funded at $4017 for 2007-08.

NSF grant # DMS 0554841, *Collaboration in Computability*, for collaboration between U.S. and Russian computability theorists, joint with many other researchers, funded at $75,000 for 2006-09. Principal Investigators: Wesley Calvert, Murray State University; Valentina Harizanov, George Washington University; Julia Knight, University of Notre Dame.

PSC-CUNY Research Award #68470-00 37, *Computability Theory and Spectra of Turing Degrees*, funded at $2992 for 2006-07.

CUNY Collaborative Incentive Research Grant #80209-04-12, *CUNY Collaboration in Mathematical Logic*, jointly with A. Apter, J. Hamkins, R. Kossak, G. Leibman, and H. Schoutens, funded at $74,922 for 2005-07.

PSC-CUNY Research Award #67182-00-36, *Computability Theory and Applications*, funded at $3311.41 for 2005-06.

PSC-CUNY Research Award #60095-34-35, *Computable Model Theory*, funded at $4150 for 2004-05.

Travel and VIGRE postdoc 2000-2003 supported by NSF grant # 9983660 to Cornell University.

Seminar Talks:
(see also the section **Conference Talks and Departmental Colloquia** above)

"Paths Through Trees vs. Equations in a Galois Group," 4 March 2024, Graduate Student Colloquium, C.U.N.Y. Graduate Center.

"Properties of Generic Algebraic Fields," 9 February 2024, C.U.N.Y. Logic Workshop, C.U.N.Y. Graduate Center.

"Computability and Absolute Galois Groups," 18 January 2024, Online Logic Seminar, Southern Illinois University (remote).

"Computability and the Absolute Galois Group of $\mathbb{Q}$," 13 April 2023, University of Waterloo Logic Seminar, Waterloo, ON, Canada.

"Computability and the Absolute Galois Group of $\mathbb{Q}$," 17 February 2023, C.U.N.Y. Logic Workshop, C.U.N.Y. Graduate Center.

"Hilbert's Tenth Problem for Subrings of the Rational Numbers," 31 October 2022, Graduate Student Colloquium, C.U.N.Y. Graduate Center.

"Interpreting a Field in its Heisenberg Group," 23 September 2022, C.U.N.Y. Logic Workshop, C.U.N.Y. Graduate Center.

"Computable Categoricity: Relative vs. Non-Relative," 17 March 2021, Computability Learning Seminar, C.U.N.Y. Graduate Center. (Talk given remotely due to the covid-19 pandemic.)

"Computability in Real Analysis," 8 February 2021, Graduate Student Colloquium, C.U.N.Y. Graduate Center. (Talk given remotely due to the covid-19 pandemic.)

"Linear Orders with No Computable Copies," two parts, 12 & 19 November 2020, Computability Learning Seminar, C.U.N.Y. Graduate Center. (Talks given remotely due to the covid-19 pandemic.)

"Model Completeness and Relative Decidability," 18 October 2019, Model Theory Seminar, C.U.N.Y. Graduate Center.

"Model Completeness and Relative Decidability," 8 October 2019, Logic Seminar, University of Maryland, College Park, MD.

"Uniform Computable Categoricity for Fields," 1 October 2019, Penn State Logic Seminar, Pennsylvania State University, State College, PA.

"Functions That No Computer Can Compute," 30 September 2019, Undergraduate Mathematics Club, Pennsylvania State University, State College, PA.

"A Computability-Theoretic Proof of Lusin's Theorem," 6 September 2019, C.U.N.Y. Logic Workshop, C.U.N.Y. Graduate Center.

"Model Completeness and Relative Decidability," 26 February 2019, Notre Dame Logic Seminar, Notre Dame University.

"The Hilbert's-Tenth-Problem Operator," 28 September 2018, C.U.N.Y. Logic Workshop.

"Hilbert's Tenth Problem for Subrings of the Rationals," 20 February 2018, Ohio State University Logic Seminar.

"Hilbert's Tenth Problem for Subrings of the Rationals," 29 January 2018, Rutgers University Logic Seminar.

"Classification and Measure for Countable Structures," 8 December 2017, C.U.N.Y. Logic Workshop.

"Classification and Measure for Algebraic Fields," 10 November 2017, George Washington University Logic Seminar.

"Classification of Algebraic Fields," 18 September 2017, Graduate Student Colloquium, C.U.N.Y. Graduate Center.

"Classification and Measure for Algebraic Fields," 23 August 2017, Cornell University Logic Seminar.

"Hilbert's Tenth Problem for Subrings of the Rationals," 22 August 2017, Cornell University Logic Seminar.

"Computable Reducibility on Equivalence Relations on Cantor Space," 10 May 2017, Cornell University Logic Seminar.

"Genericity, Infinitary Interpretations, and Automorphism Groups of Structures," 9 May 2017, Cornell University Logic Seminar.

"Hilbert's Tenth Problem for Subrings of the Rationals," 17 April 2017, Stevens Institute of Technology, Hoboken, NJ.

"Sharpening Borel reducibility on Borel equivalence relations," 24 March 2017, Set Theory Seminar, CUNY Graduate Center.

"Functors and Infinitary Interpretations of Structures," 10 February 2017, C.U.N.Y. Logic Workshop.

"Computable Functors and Effective Interpretations," 3 October 2016, Connecticut Logic Seminar.

"Hilbert's Tenth Problem for Subrings of the Rationals," 17 August 2016, University of Waterloo Logic Seminar.

"Factoring polynomials and finding roots," 22 February 2016, Graduate Student
Colloquium, C.U.N.Y. Graduate Center.

"Computable Functors and Effective Interpretations," 20 January 2016, George
Washington University Logic Seminar.

"Hilbert's Tenth Problem Inside the Rationals," 4 December 2015, C.U.N.Y. Logic
Workshop.

"Degree Spectra of Real Closed Fields," 11 September 2015, Model Theory Seminar,
C.U.N.Y. Graduate Center.

"Computable Functors and Effective Interpretations," 15 June 2015, Logic Seminar,
Sobolev Institute of Mathematics, Novosibirsk, Russia.

"Functors and Effective Interpretations in Model Theory," 12 June 2015, Technische
Universität, Darmstadt, Germany.

"Effective Classification of Computable Structures," 4 June 2015, University of Waterloo
Logic Seminar.

"Computable Functors and Effective Interpretations," 5 December 2014, C.U.N.Y. Logic
Workshop.

"Noncomputable Sets and Undecidable Problems," 12 November 2014, Westchester Area
Math Circle, Manhattanville College, Purchase, NY.

"Effective Classification of Computable Structures," 26 September 2014, George
Washington University Logic Seminar.

"Degree Spectra of Differentially Closed Fields," 14 April 2014, Berkeley Recursion
Theory Seminar, University of California-Berkeley.

"Degree Spectra of Differentially Closed Fields," 8 April 2014, Notre Dame Logic
Seminar, Notre Dame University.

"Degree Spectra of Differentially Closed Fields," 7 March 2014, Model Theory Seminar,
C.U.N.Y. Graduate Center.

"The Theory of Fields is Complete for Isomorphisms," 28 February 2014, C.U.N.Y. Logic
Workshop.

"The Theory of Fields is Complete for Isomorphisms," 24 January 2014, George
Washington University Logic Seminar.

"Fields and Computable Categoricity," 7 October 2013, Connecticut Logic Seminar.

"Independent Sets in Computable Free Groups and Fields," 26 March 2013, Universal
Algebra & Logic Seminar, Vanderbilt University.

"Fields and the Complexity of Computable Categoricity," 22 March 2013, Notre Dame University Logic Seminar.

"Independent Sets in Free Groups and Fields," 18 February 2013, Rutgers University Logic Seminar.

"Independent Sets in Computable Free Groups and Fields," 15 February 2013, Model Theory Seminar, C.U.N.Y. Graduate Center.

"Computable Categoricity for Fields," 9 November 2012, George Washington University Logic Seminar.

"Constraint Sets in Differential Fields," 17 September 2012, Connecticut Logic Seminar.

"Boolean Subalgebras of the Computable Atomless Boolean Algebra," 14 September 2012, C.U.N.Y. Logic Workshop.

"Finitary Reducibility on Equivalence Relations," 10 July 2012, Logic Seminar, Kurt Gödel Research Center, Vienna, Austria.

"Computable Reducibility on Equivalence Relations," 10 April 2012, invited talk in the Logic Seminar, Nanyang Technological University, Singapore.

"Degrees of Categoricity of Algebraic Fields," 20 March 2012, Penn State Logic Seminar.

"Is It Harder to Find a Root of a Polynomial or to Factor It?," 16 February 2012, Computer Science Proof, Complexity, and Verification Seminar Series, Swansea University, United Kingdom.

"Degrees of Categoricity of Algebraic Fields," 2 May 2011, Dartmouth Logic Seminar.

"Computation on the Real Numbers and Other Uncountable Domains," 25 February 2011, invited talk for the University of Connecticut Group in Philosophical and Mathematical Logic, Storrs, CT.

"Boolean Subalgebras of the Computable Atomless Boolean Algebra," 12 January 2011, University of Chicago Logic Seminar.

"Algebraic Fields and Computable Categoricity," 19 November 2010, George Washington University Logic Seminar.

"Algebraic Fields and Computable Categoricity," 29 October 2010, C.U.N.Y. Logic Workshop.

"Computable Categoricity and Transcendence Degrees of Fields," 21 January 2010, University of Waterloo Logic Seminar, Waterloo, ON.

"Degrees of Categoricity of Algebraic Fields," 11 December 2009, C.U.N.Y. Logic Workshop.

"BSS Machines: Computability Without Search Procedures," 6 November 2009, George Washington University Logic Seminar.

"Degrees of Categoricity of Algebraic Fields," 16 April 2009, Notre Dame Logic Seminar.

"Difficulty of Factoring Polynomials and Finding Roots," 27 February 2009, New York Algebra Colloquium.

"Degrees of Categoricity of Algebraic Fields," 12 February 2009, George Washington University Logic Seminar.

"Degrees of Categoricity of Algebraic Fields," 1 October 2008, M.I.T. Logic Seminar.

"Local Computability and Uncountable Structures," 29 September 2008, Connecticut Logic Seminar.

"Difficulty of Factoring Polynomials and Finding Roots," 12 September 2008, C.U.N.Y. Logic Workshop.

"Survey of Local Computability and Results on Computable Fields," 18 July 2008, Logic Seminar, Sobolev Institute of Mathematics, Novosibirsk, Russia.

"Survey of Results on Computable Fields," 10 July 2008, Department Seminar, Department of Algebra and Mathematical Logic, Chebotarev Research Institute, Kazan State University, Russia.

"Locally Computable Structures," 25 January 2008, George Washington University Logic Seminar.

"d-Computable Categoricity for Algebraic Number Fields," 18 January 2008, University of Chicago Logic Seminar.

"Computable Structures and Computable Categoricity," 10 December 2007, Oberseminar Mathematische Logik, Rheinische Friedrich-Wilhelms-Universität Bonn.

"Locally Computable Structures," 11 September 2007, Cornell University Logic Seminar.

"Locally Computable Structures," 14 June 2007, Oberseminar Mathematische Logik, Rheinische Friedrich-Wilhelms-Universität Bonn.

"Locally Computable Structures," 9 April 2007, University of Waterloo Logic Seminar, Waterloo, ON.

"Locally Computable Structures," 6 April 2007, University of Chicago Logic Seminar.

"Locally Computable Structures," 23 February 2007, C.U.N.Y. Logic Workshop.

"Computability over Ordinal Time and Space," 19 February 2007, Connecticut Logic Seminar.

"Post's Problem for Infinite Time Turing Machines," 10 January 2007, New York Tutorial on Infinitary Computation.

"The Automorphism Spectrum," 8 September 2006, C.U.N.Y. Logic Workshop.

"Computable Categoricity and Spectra," 17 July 2006, Logic Seminar, Sobolev Institute of Mathematics, Novosibirsk, Russia.

"Locally Computable Structures," 13 July 2006, Logic Seminar, Sobolev Institute of Mathematics, Novosibirsk, Russia.

"Spectra of Turing Degrees," 20 February 2006, Connecticut Logic Seminar.

"The Low_n Turing Degrees and Spectra of Structures," 15 February 2006, George Washington University Logic Seminar.

"Spectra of Turing Degrees," 20 January 2006, University of Chicago Logic Seminar.

"Differentially Closed Fields," six parts, 4 & 11 May, 21 & 28 September, 19 & 26 October 2005, C.U.N.Y. Model Theory Seminar.

"Spectrally Universal Structures," 25 March 2005, George Washington University Logic Seminar.

"Order-Computable Sets," 18 February 2005, C.U.N.Y. Logic Workshop.

"Order-Computable Sets," 29 October 2004, George Washington University Logic Seminar.

"Computable Categoricity," 8 October 2004, C.U.N.Y. Logic Workshop.

"Computable Categoricity for Trees," 23 April 2004, George Washington University Logic Seminar.

"Infinite-Time Turing Machines," 7 April 2004, Cornell University Logic Seminar.

"Spectrally Universal Structures," 6 April 2004, Cornell University Logic Seminar.

"Embedding a Structure While Preserving its Spectrum," 26 January 2004, Connecticut Logic Seminar.

"Undecidability and the Lattice of C.E. Turing Degrees," 19 September 2003, C.U.N.Y. Logic Workshop.

"Spectra of Structures and Relations," 12 September 2003, C.U.N.Y. Logic Workshop.

"Games on Finite Graphs," two parts, 19 November & 3 December 2002, Cornell University Logic Seminar.

"Order-Computable Sets," two parts, 30 October & 6 November 2002, Cornell University Logic Seminar.

"The Δ_2^0-Spectrum of a Linear Order," 18 October 2002, George Washington University Logic Seminar.

"Computable Categoricity for Trees," 24 July 2002, Logic Seminar, Sobolev Institute of Mathematics, Novosibirsk, Russia.

"Ritt's Algorithm for Systems of Algebraic Differential Equations," two parts, 3 & 11 April 2002, Cornell University Logic Seminar.

"Introduction to O-Minimal Theory," four parts, 6, 13, 20 & 27 February 2002, Cornell University Logic Seminar.

"Some Automorphisms of the Lattice of C.E. Sets," 4 October 2001, Cornell University Logic Seminar.

"Definability of Incompleteness for Friedberg Splittings," 24 October 2000, Cornell University Logic Seminar.

"Computable Categoricity and Trees," 12 September 2000, Cornell University Logic Seminar.

"Definable Incompleteness and Friedberg Splittings," 10 February 2000, Notre Dame Logic Seminar.

"The Δ_2^0-Spectrum of a Linear Order," 1 February 2000, Southern Wisconsin Logic Colloquium.