

# Russell G. Miller

## Work Address

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## Personal Data

Citizenship: United States  
Birthdate: 27 January 1968  
E-mail: [Russell.Miller@qc.cuny.edu](mailto:Russell.Miller@qc.cuny.edu)  
Web page: [qcpages.qc.cuny.edu/~rmiller](http://qcpages.qc.cuny.edu/~rmiller)

## 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:

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 – present.

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](http://qcpages.qc.cuny.edu/~rmiller/research.html).)

1. “The  $\Delta_2^0$ -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 Computationally 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. “ $\mathbf{d}$ -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, DOI: 10.1515/GCC.2011.002.

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. “Degree Spectra of High<sub>n</sub> and Non-low<sub>n</sub> Degrees,” with A. Frolov, V. Harizanov, I. Kalimullin, & O. Kudinov, to appear in the *Journal of Logic and Computation*, DOI: 10.1093/logcom/exq041.
22. “Local Computability and Uncountable Structures,” chapter to appear 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*.
23. “Low<sub>5</sub> Boolean Subalgebras and Computable Copies,” *Journal of Symbolic Logic* **76** (2011) 3, 1061-1074.
24. “Computably Categorical Fields via Fermat’s Last Theorem,” with H. Schoutens, submitted for publication.
25. “Computable Categoricity for Algebraic Fields with Splitting Algorithms,” with A. Shlapentokh, in preparation.
26. “Categoricity Properties for Computable Algebraic Fields,” with D. Hirschfeldt, K. Kramer, & A. Shlapentokh, in preparation.
27. “Spectra of Algebraic Fields and Subfields,” with A. Frolov & I. Kalimullin, in preparation (expanded version of Research Abstract 6 below).
28. “The Distance Function on a Computable Graph,” with W. Calvert & J. Chubb, in preparation.
29. “Computable Reducibility of Equivalence Relations on the Natural Numbers,” with S. Coskey & J. Hamkins, in preparation.

**Peer-Reviewed Extended Research Abstracts:**

(Most abstracts available at [qcpages.qc.cuny.edu/~rmiller/research.html](http://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. (See also item 27 above, under Research Articles.)
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, Lecture Notes in Computer Science* **6735** (Berlin: Springer-Verlag, 2011).

### 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.
2. “Computability and Differential Fields: a Tutorial,” to appear in *Differential Algebra and Related Topics: Proceedings of the Second International Workshop*, eds. L. Guo & W. Sit (World Scientific, 2011), ISBN 978-981-283-371-6.

### Books Edited:

*Effective Mathematics of the Uncountable*, eds. N. Greenberg, J.D. Hamkins, D.R. Hirschfeldt, & R.G. Miller, under contract for publication by the Association of Symbolic Logic in the series *Lecture Notes in Logic*.

### Conference Talks and Departmental Colloquia:

“Exploring Effectiveness in Differential Fields,” 23 September 2012, 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 Matemàtica, 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 Matemàtica, 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  $\text{High}_n$  and  $\text{Non-low}_n$  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, Università di Siena, Italy.
- “Locally Computable Structures,” 21 June 2007, contributed talk at the Computability in Europe conference, Università di Siena, Italy.
- “Post’s Problem for Ordinal Register Machines,” 19 June 2007, contributed talk at the Computability in Europe conference, Università 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 Joint Mathematical Meetings, San Antonio, TX, for the Association for Symbolic Logic.
- “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.
- “Computationally 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  $\omega$ ,” 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  $\Delta_2^0$ -Spectrum of a Linear Order,” 13 March 1999, invited talk in special session of the A.M.S. regional conference in Gainesville, FL.

### **Principal Research Visits:**

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

Visiting Fellow of the Isaac Newton Institute, Cambridge University, 18 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 Matemàtica, Barcelona, Catalunya, Spain, 30 May – 11 June, 2011.

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:**

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

Doctoral courses taught at CUNY Graduate Center:

Math 71200, *Mathematical Logic II*, Spring 2009.

Computer Science 85020, *Topics in Computability Theory*, Autumn 2008.

Math 71200, *Mathematical Logic II*, Spring 2007.

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

Math 71200, *Mathematical Logic II*, Spring 2005.

### **Service Activities:**

Mathematics Community:

Editorial Board member for the journal *Computability*, 2011-2015.

Referee for research articles submitted to:

*Annals of Pure and Applied Logic*

*Archive for Mathematical Logic*

*Fundamenta Mathematicae*

*Israel Journal of Mathematics*

*Journal of Logic and Computation*

*Journal of Symbolic Logic*

*Notre Dame Journal of Formal Logic*

*Proceedings of the American Mathematical Society*

*Proceedings of the London Mathematical Society*

Referee for abstracts/chapters submitted to conference proceedings volumes and books subsequently published:

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 proposals submitted to:

National Science Foundation.

Marsden Fund, Royal Society of New Zealand.

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

Member of the Organizing Committee for the meeting *Computability Theory and Applications: A meeting in honor of Robert I. Soare*, University of Chicago, 14-15 May 2011.

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

Member of the Organizing Committee for the First and Second *CUNY Workshops on Effective Mathematics of the Uncountable*, CUNY Graduate Center, New York, 18-22 August 2008 & 17-21 August 2009.

Member of the Organizing Committee for the meeting *Topics in Computability: A meeting in honor of Richard Shore*, Massachusetts Institute of Technology, 21-22 January 2007.

Member of the Organizing Committee for the *Stanley Tennenbaum Memorial Logic Conference*, sponsored by the Mid-Atlantic Mathematical Logic Seminar, CUNY Graduate Center, 7 April 2006.

Mathematics at CUNY:

CUNY Graduate Center Logic Qualifying Exam committee member, 2010.

PSC-CUNY Research Foundation Mathematics Panel member, 2009-10.

CUNY Graduate Center Logic Qualifying Exam committee member, 2009.

Lead organizer of the CUNY Logic Workshop, 2008-09.

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

Mentor for new faculty, Mathematics Department, Queens College, 2008-09.  
CUNY Graduate Center Logic Qualifying Exam committee chairperson, 2007.  
Mathematics Department Delegate, Academic Senate of Queens College, 2006-07,  
2008-10.  
Reviewer of research grant proposals submitted to the CUNY Community College  
Collaborative Incentive Research Grants Program.  
CUNY Graduate Center Logic Qualifying Exam committee member, 2005.  
PSC-CUNY Research Foundation Mathematics Panel member, 2003-04.

General CUNY Service:

Member, PSD Research Enhancement Committee, Queens College, Autumn 2011.  
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 #DMS - 1001306, *Computability Theory, Facing Outwards*, funded at \$107,198  
for 2010-2013.

NSF grant *Collaboration in Computability*, for collaboration between U.S. and Russian  
computability theorists, joint with many other researchers, funded at \$82,500 for  
2011-14. Principal Investigator: Prof. Julia Knight, University of Notre Dame.

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

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.

Travel and collaboration in 2002 supported by NSF grant # DMS 0075899 for joint work between researchers in Russia, U.S.A., and Kazakhstan. Principal Investigator: Steffen Lempp, University of Wisconsin.

### **Seminar Talks:**

“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.
- “ $\mathbf{d}$ -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<sub>n</sub> 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  $\Delta_2^0$ -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  $\Delta_2^0$ -Spectrum of a Linear Order,” 1 February 2000, Southern Wisconsin Logic Colloquium.