Linda Westrick – Curriculum Vitae

Contact

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Education

Ph.D. in Mathematics, University of California-Berkeley, May 2014. Advisor: Theodore Slaman.

B.S. in Mathematics, Massachusetts Institute of Technology, February 2009.

Employment

Assistant Professor, Penn State University, 2018–present.

Assistant Research Professor/Postdoctoral Fellow, University of Connecticut, 2016–2018.

Postdoctoral Fellow, Victoria University of Wellington, 2015–2016.

Postdoctoral Fellow, University of Connecticut, 2014–2015.

Research Interests

Mathematical logic and computability theory, especially interactions with classical real analysis, descriptive set theory, Ramsey theory, algorithmic information theory and symbolic dynamics.

Papers

Submitted

1. H. Towsner, R. Weisshaar, & L. Westrick. Borel combinatorics fail in HYP. Submitted. arXiv:2106.13330.

2. K. Eisenträger, R. Miller, C. Springer & L. Westrick. A topological approach to definability in algebraic extensions of $\mathbb{Q}$. Submitted. arXiv:2010.09551.

3. L. Westrick. Completely determined Borel sets and measurability. Submitted. arXiv:2001.01881.

4. A. R. Day, R. Downey & L. Westrick. Three topological reducibilities for discontinuous functions. Submitted. arXiv:1906.07600.

Published or accepted

1. D. Dzhafarov, S. Flood, R. Solomon & L. Westrick. Effectiveness for the Dual Ramsey Theorem. Submitted. To appear in *Notre Dame J. Form. Log.* arXiv:1710.00070.

2. A. Pauly, L. Westrick & L. Yu. Luzin's (N) and randomness reflection. To appear in *J. Symb. Log.* arXiv:2006.07517.

3. L. Westrick. A note on the diamond operator. *Computability* 10(2):107-110, 2021.

4. L. Westrick. An effective analysis of the Denjoy rank. *Notre Dame J. Form. Log.* 61, no. 2, 245-263, 2020.

5. E. P. Astor, D. Dzhafarov, A. Montalbán, R. Solomon & L. Westrick. The determined property of Baire in reverse math. *J. Symb. Log.* 85(1):166–198, 2020.

6. B. Csima, D. Dzhafarov, D. Hirschfeldt, C. Jockusch, R. Solomon & L. Westrick. The reverse mathematics of Hindman's Theorem for sums of exactly two elements. *Computability* 8(3-4):253–263, 2019.

7. L. Westrick. Weakly 2-randoms and 1-generics in Scott sets. *J. Symb. Log.*, 83(1):392–394, 2018.

8. N. Greenberg, J. Miller, A. Shen & L. Westrick. Dimension 1 sequences are close to randoms. *Theoret. Comput. Sci.*, 705:99–112, 2018.

9. N. Greenberg, D. Turetsky & L. Westrick. Finding bases of uncountable free abelian groups is usually difficult. *Trans. Amer. Math. Soc.*, 370(6):4483–4508, 2018.

10. L. Westrick. Seas of squares with sizes from a Π_1^0 set. *Israel J. Math.*, 222(1):431–462, 2017.

11. D. Dzhafarov, C. Jockusch, R. Solomon & L. Westrick. Effectiveness in Hindman's Theorem for bounded sums. In *Computability and complexity*, volume 10010 of *Lecture Notes in Comput. Sci.*, pages 134–142. Springer, Cham, 2017.

12. D. Dzhafarov, L. Patey, R. Solomon & L. Westrick. Ramsey's Theorem for singletons and strong computable reducibility. *Proc. Amer. Math. Soc.*, 145(3):1343–1355, 2017.

13. L. Westrick. A lightface analysis of the differentiability rank. *J. Symb. Log.*, 79(1):240-265, 2014.

Invited talks at conferences

1. (Postponed indefinitely due to coronavirus) Computability, Complexity and Randomness (CCR) at the Isaac Newton Institute. Cambridge, UK.

2. AIMS Conference Series on Dynamical Systems and Differential Equations, Special Session on Fractal Geometry, Dynamical Systems, and Their Applications. Rome. Summer 2022.

3. **Plenary speaker**, Panhellenic Logic Symposium. Volos, Greece. Summer 2022.

4. **Plenary speaker**, Logic Colloquium, European Summer meeting of the ASL. Poznan, Poland/Online meeting. July 2021.

5. Third Workshop on Digitalization and Computable Models (WDCM). Novosibirsk and Kazan, Russia/Online meeting. June 2021.

6. ASL Summer Meeting, Special Session on Weihrauch Reducibility. Notre Dame/Online meeting. June 2021.

7. Southeastern Logic Symposium, Special Session on Computability. Gainesville, FL/Online meeting. February 2021.

8. **Invited speaker** Computer Science Logic (CSL). Ljubljana, Slovenia/Online meeting. January 2021.

9. Joint Math Meetings, Special Session on Computability. Online meeting. January 2021.

10. Annual Meeting of the German Math Society, Minisymposium on the impact of randomness on computation. Online meeting. September 2020.

11. (Cancelled due to coronavirus) ASL Annual Meeting, Special Session on Reverse mathematics and computability of Ramsey-theoretic principles. Irvine. March 2020.

12. **ASL Invited Address**, ASL Winter Meeting at the Joint Math Meetings, Denver. January 2020.

13. Joint Math Meetings, Special Session on Logic Facing Outward. Denver. January 2020.

14. Canadian Mathematical Society Winter Meeting, Special Session on Computability Theory. York University, Toronto. December 2019.

15. AMS Fall Southeastern Sectional Meeting, Special Session on Fractal Geometry and Dynamical Systems. University of Florida, Gainesville. November 2019.

16. AMS Fall Central Sectional Meeting, Special Session on Computability Theory in Honor of Steffen Lempp's 60th Birthday. University of Wisconsin, Madison. September 2019.

17. **Plenary speaker**, Computability in Europe 2019. University of Durham, UK. July 2019.

18. Joint Math Meetings, Special Session on Algorithmic Dimensions and Fractal Geometry. Baltimore. January 2019.

19. Joint Math Meetings, Special Session on Definability and Decidability Problems in Number Theory. Baltimore. January 2019.

20. Logic Colloquium 2018, Special Session on Computability Theory, Udine, Italy. July 2018.

21. **Plenary speaker**, Workshop on Computability Theory and its Applications. University of Waterloo. June 2018.

22. ASL North American Meeting, Special Session on Computability. Western Illinois University, Macomb, Illinois. May 2018.

23. South-Eastern Logic Symposium (SEALS), University of Florida, Gainesville. March 2018.

24. **Plenary speaker**, Computability and Complexity in Analysis 2017, KAIST, Daejeon, Korea. July 2017.

25. Asian Logic Conference 2017, Special Session on Computability, NIMS, Daejeon, Korea. July 2017.

26. AMS Eastern Sectional Meeting, Special Session on Computability Theory: Pushing the Boundaries, Hunter College, New York City. May 2017.

27. **ASL Invited Address**, ASL Winter Meeting at the Joint Mathematics Meetings, Atlanta. January 2017.

28. Midwestern Computability Seminar, Special Meeting in Honor of Carl Jockusch's 75th Birthday, University of Chicago. October 2016.

29. AMS Fall Central Sectional Meeting, Special Session on Effective Mathematics in Discrete and Continuous Worlds, University of St. Thomas, Minneapolis. October 2016.

30. Computability, Complexity & Randomness, University of Hawaii, Honolulu. January 2016.

31. ASL North American Annual Meeting, Special Session on Computability, University of Illinois at Urbana-Champaign. March 2015.

32. South-Eastern Logic Symposium (SEALS), University of Florida, Gainesville. February 2015.

33. Canadian Mathematical Society Winter Meeting, Special Session on Computability Theory, Hamilton. December 2015.

34. Workshop on Computability Theory, Prague. July 2014.

35. AMS Central Sectional Meeting, Special Session on Computability Across Mathematics, Washington University, St. Louis. October 2013.

Invited workshops, seminars, colloquia and research visits

1. AIM Workshop on Algorithmic Randomness. San Jose, California. August 2022.

2. CIRM conference: New Directions in Computability Theory, Luminy. (speaker). March 2022.

3. Dagstuhl Workshop: Descriptive Set Theory and Computable Topology. November 2021.

4. Udine-Turin Logic Seminar, Udine & Turin, Italy / Online seminar. May 2021.

5. Oberwolfach Workshop. Computability Theory. Online. April 2021.

6. Colloquium speaker for the Department of Pure Mathematics, University of Waterloo. Online. March 2021.

7. Midwest Computability Seminar. Online seminar. December 2020.

8. MSRI program on decidability, definability and computability in number theory, Computability Seminar. Online seminar. November 2020.

9. AIM Workshop on Algorithmic Randomness. Online workshop. August 2020.

10. Online Logic Seminar. `http://lagrange.math.siu.edu/calvert/OnlineLogicSeminar.html` July 16 2020.

11. (Postponed due to coronavirus) Dagstuhl Seminar. Descriptive Set Theory and Computable Topology. Descriptive Set Theory and Computable Topology. April 2020.

12. University of Wisconsin-Madison. March 2020.

13. BIRS-CMO Workshop. Reverse Mathematics of Combinatorial Principles (speaker). Oaxaca. September 2019.

14. Institute for Mathematical Sciences/NUS Workshop, Recursion Theory, Set Theory and Interactions (speaker). Singapore. May-June 2019.

15. Institute for Mathematical Sciences/NUS Workshop, Equidistribution: Arithmetic, Computational and Probabilistic Aspects (speaker). Singapore. May 2019.

16. Dagstuhl Seminar. Measuring the Complexity of Computational Content: From Combinatorial Problems to Analysis. September 2018.

17. University of Wisconsin-Madison. May 2018.

18. Oberwolfach Workshop (speaker). Computability Theory. January 2018.

19. Institute for Mathematical Sciences Workshop (speaker). Aspects of Computation: Algorithmic Randomness, Singapore. September 2017.

20. University of Nagoya. August 2017.

21. Dagstuhl Seminar (speaker). Computability Theory. February 2017.

22. BIRS-CMO Workshop (speaker). Algorithmic Randomness Interacts with Analysis and Ergodic Theory, Oaxaca. December 2016.

23. University of Wisconsin-Madison. October 2016.

24. CIRM Workshop (speaker). Computability, Randomness and Applications, Luminy. June 2016.

25. University of Florida-Gainesville. May 2015.

Grants and Awards

1. NSF FRG Collaborative Research: Computability-Theoretic Aspects of Combinatorics (PI). July 2019-June 2022. DMS-1854107.

2. AWM Travel Grant for LC18 and CiE18 conferences, 2018.

3. US Junior Oberwolfach Fellow (NSF Grant) for Oberwolfach Workshop, 2018.

4. UConn Provost recognition as among faculty who excel in teaching, 2017.

5. Schloss Dagstuhl-NSF Support Grant for Dagstuhl Seminar, 2017.

6. UConn Provost recognition as faculty who excel in teaching, 2015.

7. ASL Student Travel Grants for CiE 2014 and VSL Logic Colloquium 2014.

8. P.E.O. International Scholar Award, 2013 ($15,000 for the dissertation year).

9. UC-Berkeley Outstanding Graduate Student Instructor Award, 2013.

10. NSF Graduate Research Fellowship Honorable Mention, 2010.

11. Ranked in top 10% of MIT math majors, 2008.

Teaching experience

Instructor of record at Penn State University

1. Introduction to Mathematical Logic (upper division), Spring 2021, ≈35 students.

2. Introduction to Analysis I (upper division), Spring 2021, ≈35 students.

3. Foundations of Mathematics I (graduate), Spring 2020, ≈10 students.

4. Introduction to Mathematical Logic (upper division), Spring 2020, ≈40 students.

5. Introduction to Analysis I (upper division), Fall 2019, ≈30 students.

6. Linear Algebra (upper division), Spring 2019, ≈30 students.

7. Linear Algebra (upper division), Fall 2018, ≈30 students.

Instructor of record at University of Connecticut

1. Probability (**upper division**), Spring 2018, ≈30 students.

2. Analysis I (upper division), Spring 2018, ≈30 students.

3. Geometry, Fall 2017, ≈20 students.

4. Graduate reading course in descriptive set theory (informal), Summer 2017, 1 student.

5. Effective Descriptive Set Theory (**graduate**), Spring 2017, 5 students.

6. Transistion to Advanced Mathematics, Spring 2017, ≈30 students.

7. Multivariable Calculus, Fall 2016, ≈30 students.

8. Calculus I (**large lecture**), Fall 2016, ≈300 students, 5 TAs.

9. Computability Theory (graduate), Spring 2015, ≈10 students.

10. Calculus I (large lecture), Spring 2015, ≈90 students, 2 TAs.

11. Multivariable Calculus, Fall 2014, ≈60 students in 2 small lectures.

Instructor of record at Victoria University of Wellington

1. Precalculus (large lecture), Spring 2016, ≈200 students, 5 TAs.

2. Linear Algebra, Fall 2016, ≈70 students, 3 TAs, instructor of record for half the course.

Graduate Student Assistant at UC-Berkeley

1. Professional Development Program (serves under-represented groups); Calculus 1A & 1B, Linear Algebra, 2011-2012.

2. Calculus 1B, Linear Algebra, 2009-2010.

Selected Activities

1. Visiting Graduate Student at the University of Buenos Aires. Spring 2013.

2. Machine Learning Intern at Prior Knowledge startup (MCMC, Python). Summer 2012.

3. Visiting Fellow at the Isaac Newton Institute, Cambridge, UK. January 2012.

4. IPAM Graduate Summer School in Probabilistic Models of Cognition, UCLA. July 2011.

5. AII Graduate Summer School in Logic, National University of Singapore. Summer 2010.

Service & Community

1. Program Committee member, Computer Science Logic 2022.

2. Organizing Committee member for CIRM conference New Directions in Computability Theory, 2022.

3. Program Committee member for the conference Computability and Complexity in Analysis, 2021.

4. Presentation "Transfinite Algorithms and Computable Ordinals" for the Penn State Student Colloquium. October 2020.

5. Penn State Library Committee, 2020-2023.

6. Program Committee Co-chair for the conference Computability, Complexity and Randomness, 2022.

7. Co-organizer, Online Seminar on Computability Theory and Applications, 2020-present.

8. (Postponed due to coronavirus) Local organizer, Reverse Mathematics of Combinatorial Principles conference at Penn State, May 2020.

9. Presentation "Hindman's Theorem for bounded sums" for the Penn State graduate student seminar, January 2020.

10. Penn State Qualifying Examinations Panel, 2019.

11. Penn State Graduate Teaching Assistant Oversight Committee, 2018-2021.

12. Program Committee member for Computability in Europe, 2020.

13. Presentation "How to give a job talk" for the Penn State math department's postdoctoral association, January 2019.

14. Panelist at "Academic job search" panel for Penn State postdocs and grad students, December 2019.

15. Reviewing for Journal of Symbolic Logic, Computability in Europe, Forum of Mathematics (Sigma), Computability, Israel Journal of Mathematics, Advances in Mathematics and MathSciNet. 2015-present.

16. Co-organizer of the Computability Special Session at the ASL North American Annual Meeting, 2019.

17. Co-organizer of the Special Session on Computability at the AMS Spring Eastern Sectional, 2019.

18. Program Committee member for the conference Computability, Complexity and Randomness, 2018.

19. Speaker at UConn undergraduate math club, April 2017.

20. Panelist at "Applying for grad school" session for UConn undergraduates, April 2015.

21. Officer of the UC-Berkeley Math Graduate Student Association. 2011-2012.

22. Mathspace Chair (undergrad mentoring program run by math graduate students). 2009-2010.

23. Member of the Association for Symbolic Logic. 2007-present.