Robert Robere

Assistant Professor
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Research Interests.

Computational complexity theory, proof complexity, circuit complexity, and related topics.

Education.

- **Ph.D. in Computer Science** (2013 — 2018)
  University of Toronto, Toronto, Canada.
  Advisors: Toniann Pitassi and Stephen Cook
  Thesis Title: *Unified lower bounds for monotone computation.*
  Awarded the 2019 EATCS Distinguished Dissertation Award.

- **Master of Science in Computer Science** (2012 — 2013)
  University of Toronto, Toronto, Canada.
  Advisors: Toniann Pitassi and Stephen Cook
  Project Title: *Average case lower bounds for monotone switching networks.*

- **Bachelor of Science in Computer Science (Honours)** (2007 — 2012)
  Minor: Mathematics
  Memorial University of Newfoundland, St. John's, Canada.
  Graduated with First Class Distinction.
  Awarded Medal of Academic Achievement in Computer Science

Professional Experience.

- **Research Fellow** (January 2023 — May 2023)
  Simons Institute, University of California, Berkeley, U.S.A.
  Simons-Berkeley Research Fellow in the program "Meta-Complexity".

- **Visiting Scientist** (January 2021 — May 2021)
  Simons Institute, University of California, Berkeley, U.S.A.
  Long-term participant in the program "Satisfiability: Theory, Practice and Beyond".

- **Assistant Professor** (August 2020 — Present)
  School of Computer Science, McGill University, Montréal, Québec, Canada.

- **Member** (September 2019 — August 2020)
  CSDM Group, School of Mathematics, Institute for Advanced Study, Princeton, New Jersey, U.S.A.

- **Research Fellow** (January 2019 — August 2019)
  DIMACS, Rutgers University, New Brunswick, New Jersey, U.S.A.

- **Research Fellow** (August 2018 — December 2018)
  Simons Institute, University of California, Berkeley, U.S.A.
  Simons-Berkeley Research Fellow in the program "Lower Bounds in Computational Complexity".

- **Sessional Course Instructor** (January 2014 — May 2014, January 2016 — May 2016)
  University of Toronto, Toronto, Canada.

- **Research Assistant** (September 2009 — January 2012)
  Memorial University of Newfoundland, St. John's, Canada.
  Supervisors: Todd Wareham and Antonina Kolokolova

- **Assistant System Programmer** (May 2009 — August 2009)
  Memorial University of Newfoundland, St. John's, Canada.

Awards, Honours, and Fellowships.

- Simons-Berkeley Research Fellowship, 2022
  Associated with the "Meta-Complexity" program.

- Invited journal article "*On the power and limitations of branch-and-cut*" at CCC 2021.
  (Honour reserved for top 5-10 papers in conference.)

- Co-recipient of the 2019 European Association for Theoretical Computer Science Distinguished Dissertation
  Award.

- Simons-Berkeley Research Fellowship, 2018
  Associated with the "Lower Bounds in Computational Complexity" program.

- NSERC Postdoctoral Fellowship, 2018 — 2020
  Value: $90,000.

- Walter C. Sumner Memorial Fellow, 2017 — 2018
  Value: $8,000.

- Invited journal article "*Exponential Lower Bounds for Monotone Span Programs*" at FOCS 2016.
  (Honour reserved for top 5-10 papers in conference.)

- University of Toronto CSSU Instructor Award, 2014
  Awarded for CSC373 — Algorithm Design and Analysis

- NSERC Alexander Graham Bell Canada Graduate Scholarship-Doctoral, 2014-2017
  Value: $105,000.

- Cognitive Science Society Prize for Best Student Paper, 2013
  Awarded for the paper "*When almost is not even close: remarks on the approximability of HDTP*". Received
  at the sixth conference of Artificial and General Intelligence, 2013.

- Memorial University Medal of Academic Achievement in Computer Science (Graduated Top of Class), 2012.

Funding Awarded.

- McGill University Startup Grant, 2020-2023 (Value: $120,000)

- NSERC Discovery Launch Supplement, 2021-2022 (Value: $12,500)

- NSERC Discovery Accelerator Supplement, 2021-2024 (Value: $120,000)
  Title: *Towards a Unified Theory of Proof and Circuit Complexity.*

- NSERC Discovery Grant, 2021-2026 (Value: $230,000).
  Title: *Towards a Unified Theory of Proof and Circuit Complexity.*

Professional Service.

Program Committee Membership.
- 52nd Annual ACM Symposium on Theory of Computing (STOC 2020).

- 30th International Joint Conference on Artificial Intelligence (IJCAI 2021).

- 31st International Joint Conference on Artificial Intelligence (IJCAI 2022).

- 2022 FLoC Workshop on Proof Complexity (PC 2022).

- 32nd International Joint Conference on Artificial Intelligence (IJCAI 2023).

- 55th Annual ACM Symposium on Theory of Computing (STOC 2023).

- 33rd International Joint Conference on Artificial Intelligence (IJCAI 2024).

- 15th Annual Innovations in Theoretical Computer Science Conference (ITCS 2024).

- 39th Annual Computational Complexity Conference (CCC 2024).

Workshops Organized.
- Organizer for special session on Proof Complexity associated with the Gödel Lecture at the 2019 North American Annual Meeting for the Association for Symbolic Logic.

- Co-organizer for invited workshop on "Propositional Proof Complexity" at FOCS 2021.

- Co-organizer for ToniCS — A workshop celebrating the work of Toniann Pitassi — at the Simons Institute in 2023.

Conference Reviewing. I have reviewed papers for the following conferences, many in multiple iterations: Computational Complexity Conference (CCC), Computer Science in Russia (CSR), Foundations of Software Technology and Theoretical Computer Science (FSTTCS), Symposium on Foundations of Computer Science (FOCS), Innovations in Theoretical Computer Science (ITCS), International Colloquium on Automata, Languages, and Programming (ICALP), International Joint Conference on Artificial Intelligence (IJCAI), International Conference on Theory and Applications of Satisfiability Testing (SAT), Symposium on Theoretical Aspects of Computer Science (STACS), Symposium on Theory of Computing (STOC), ACM-SIAM Symposium on Discrete Algorithms (SODA).

Journal Reviewing. I have reviewed papers for the following journals: Algorithmica, Artificial Intelligence, Information Processing Letters (IPL), Logical Methods in Computer Science (LMCS), SIAM Journal of Computing (SICOMP), Theory of Computing.

Other Service.
- Program Committee Board of IJCAI (2021-2023) (*agreed to serve on PC for three consecutive years*).

Teaching.

I have been the instructor for the following courses.

- **Algorithm Design** (COMP 360) and **Honours Algorithm Design** (COMP 362) at **McGill University**

  – Winter 2021, Winter 2022, Fall 2022, Fall 2023

- **Propositional Proof Complexity** (COMP 596/598) at **McGill University**

  – Fall 2020, Fall 2021, Fall 2022, Winter 2024.

- **Formal Languages and Automata** (CS 452/508) at **Rutgers University**.

  – Spring 2019.

- **Computability and Complexity** (CSC 363) at **University of Toronto**.

  – Spring 2016.

- **Algorithm Design and Analysis** (CSC 373) at **University of Toronto**.
    - Spring 2014.

Supervision.

Current Graduate Students.
- Ben Davis (McGill University, Ph.D., Spring 2024 — Present)
- Svetla Vassileva (McGill University, Masters, Fall 2023 — Present)
- John Ahmed Dellas (McGill University, Ph.D., Fall 2022 — Present)
- Stefan Grosser (McGill University, Ph.D., Fall 2021 — Present)

Graduated Students.
- Ben Davis (McGill University, Masters, Fall 2022 — Fall 2023). *Fast-tracked to Ph.D. student in Computer Science at McGill.*
- Gal Yehuda (Co-supervised, Technion, Ph.D., Fall 2021 — Winter 2023). *Now Ph.D. student in Mathematics at Yale University.*

Past Undergraduate Research Students.
- Ben Davis, (McGill University, NSERC USRA, Summer 2022). → *Masters student at McGill.*
- William Pires (McGill University, Research Assistant, Summer 2021 – Winter 2022). → *Ph.D. student at Columbia University.*
- Ran Tao (McGill University, NSERC USRA, Summer 2021). → *Ph.D. student at McGill University.*
- Shoshana Simons (Rutgers University, NSF REU, Summer 2019). → *Ph.D. student at Berkeley.*

Undergraduate Research Courses Supervised.
- Hana Zhang, *Witnessing theorems in bounded arithmetic.* (McGill University, COMP 396, Fall 2022)
- Zoë Wefers, *Pseudodeterministic query complexity.* (McGill University, COMP 400, Winter 2022)
- Ben Davis, *Interpolation for Bounded Depth Frege.* (McGill University, COMP 400, Fall 2021)
- Ran Tao, *Proof Complexity of the Pigeonhole Principle.* (McGill University, COMP 396, Winter 2021)

Invited Presentations

Presentations are listed in reverse-chronological order and **do not include** oral presentations given for accepted conference papers or poster sessions.

1. Meta-Complexity Extended Reunion Workshop
   Simons Institute, UC Berkeley, (2024)
   Invited Speaker.
   Seminar Title: *PPP is not black-box Turing-Closed.*

2. Proof Complexity and Beyond Workshop
   Oberwolfach, Germany (2024)
   Invited Speaker.
   Seminar Title: *Proof Complexity and TFNP.*

3. Special Session on "Logic and Computation"
   Association for Symbolic Logic European Summer Meeting, Milan, Italy (2023)
   Invited Speaker.
   Seminar Title: *On Propositional Proofs and Total Search Problems*

4. Satisfiability: Theory, Practice, and Beyond Extended Reunion Workshop
   Simons Institute, UC Berkeley (2023)
   Invited Speaker.
   Seminar Title: *A Survey on Automatability.*

5. Special Session on "Proof Complexity Beyond Propositional Logic"
   Association for Symbolic Logic North American Annual Meeting, UC Irvine (2023)
   Invited Speaker.
   Seminar Title: *On Propositional Proofs and Total Search Problems*

6. Computational Complexity of Discrete Problems Workshop
   Dagstuhl Workshop 23111, Dagstuhl, Germany (2023).
   Invited Speaker.
   Seminar Title: *Colourful TFNP and Propositional Proofs*

7. Simons Institute Meta-Complexity Seminar
   Simons Institute, UC Berkeley (2023)
   Invited Speaker.
   Seminar Title: *Pseudorandom Self-Reductions for NP-Complete Problems.*

8. Special Session on "Algorithms and Complexity Aspects of Optimization"
   Canadian Mathematical Society Winter Meeting, Toronto, Canada (2022)
   Invited Speaker.
   Seminar Title: *On the Proof Complexity of Integer Programming Solvers*

9. Tensors: Quantum Information, Algebraic Complexity, and Extremal Combinatorics Workshop
   Centre de Recherche Mathématiques, Montréal, Canada (2022)
   Invited Speaker.
   Seminar Title: *Amortized Circuit Complexity, Formal Complexity Measures, and Catalytic Algorithms*

10. BIRS Communication Complexity and Applications Workshop
    BIRS Centre, Banff, Canada (2022)
    Invited Speaker.
    Seminar Title: *Proofs, Circuits, and Communication*

11. Mathematical Approaches to Lower Bounds: Complexity of Proofs and Computation Workshop
    International Centre for Mathematical Sciences (ICMS), Edinburgh (2022).
    Invited Speaker.
    Seminar Title: *Lifting Theorems: A Survey.*

12. Satisfiability: Theory, Practice, and Beyond Reunion Workshop
    Simons Institute, UC Berkeley. (2022)
    Invited Speaker.
    Seminar Title: *Separations and intersections in Proof Complexity and TFNP.*

13. UC San Diego Computer Science Theory Seminar
    UC San Diego. (2022)
    Invited Speaker.
    Seminar Title: *Separations and intersections in Proof Complexity and TFNP.*

14. University of Michigan Computer Science Theory Seminar
    University of Michigan. (2022)
    Invited Speaker.
    Seminar Title: *Pseudorandom self-reductions for NP-Complete problems*

15. Institute of Mathematics Logic Seminar
    Czech Academy of Sciences. (2022)
    Invited Speaker.
    Seminar Title: *On semi-algebraic proofs and algorithms*

16. Mathematical Insights into Algorithms for Optimization Seminar
    University of Copenhagen and University of Lund. (2021)
    Invited Speaker.
    Seminar Title: *Proof complexity lower bounds by composition.*

17. Computational Complexity of Discrete Problems Workshop
    Dagstuhl Workshop 21121 (2021).

Invited Speaker.
Seminar Title: *Duality Theorems for Amortized Circuit Complexity.*

18. Theoretical Foundations of SAT/SMT Solving Workshop
    Simons Institute, UC Berkeley (2021).
    Invited Speaker.
    Seminar Title: *Hard formulas in proof complexity by composition.*

19. Oxford-Warwick Complexity Meetings
    Online (2021).
    Invited Speaker.
    Seminar Title: *Amortized circuit complexity, formal complexity measures, and catalytic algorithms.*

20. CombGeo Lab Big Seminar
    Laboratory of Combinatorial and Geometric Structures, MIPT, Moscow, Russia. (2020)
    Invited Speaker.
    Seminar Title: *Nullstellensatz Size-Degree Tradeoffs from Reversible Pebbling.*

21. DIMACS Theory Seminar
    DIMACS, Rutgers University (2019)
    Invited Speaker.
    Seminar Title: *Nullstellensatz Size-Degree Tradeoffs from Reversible Pebbling.*

22. Association for Symbolic Logic North American Annual Meeting
    New York City (2019)
    Invited Speaker.
    Seminar Title: *Circuits, Proofs, and Communication.*

23. Symposium on 50 Years of Complexity Theory: A Celebration of the Work of Stephen Cook
    Fields Institute, Toronto, Canada (2019)
    Invited Speaker.
    Seminar Title: *Algorithms, Proofs, and Communication: A Unified Perspective.*

24. University of Chicago Theory Seminar
    University of Chicago (2019)
    Invited Speaker.
    Seminar Title: *Lifting with Simple Gadgets and Applications for Cutting Planes.*

25. DIMACS Theory Seminar
    DIMACS, Rutgers University (2019)
    Invited Speaker.
    Seminar Title: *Lifting with Simple Gadgets and Applications for Cutting Planes.*

26. Simons Institute Theory Seminar.
    Simons Institute, UC Berkeley (2018)
    Invited Speaker.
    Seminar Title: *Lifting with Simple Gadgets and Applications for Cutting Planes.*

27. Boolean Devices Workshop.
    Simons Institute, UC Berkeley (2018)
    Invited Speaker.
    Seminar Title: *Lifting Nullstellensatz Degree to Monotone Span Program Size.*

28. Proof Complexity Workshop
    Dagstuhl Seminar 18051, Germany (2018)
    Invited Speaker.
    Seminar Title: *Lifting Nullstellensatz Degree to Monotone Span Program Size.*

29. Hardness Escalation in Communication Complexity and Query Complexity (FOCS)
    Berkeley, U.S.A. (2017)
    Invited Speaker.
    Seminar Title: *Lifting Nullstellensatz Degree to Monotone Span Program Size.*

30. Proof Complexity and Beyond Workshop
    MFO Oberwolfach, Germany (2017)
    Invited Speaker.
    Seminar Title: *Lower Bounds for Monotone Computation: Unified and Optimal.*

31. CS Theory Seminar
    KTH Royal Institute of Technology, Stockholm, Sweden (2017)
    Invited Speaker.
    Seminar Title: *Lower Bounds for Monotone Computation: Unified and Optimal.*

32. CSDM Seminar
    Institute for Advanced Study, Princeton (2017)
    Invited Speaker.
    Seminar Title: *Applications of Monotone Constraint Satisfaction.*

33. IEEE Foundations of Computer Science (FOCS)
    New Brunswick, U.S.A. (2016)
    Plenary Speaker.
    Seminar Title: *Exponential Lower Bounds for Monotone Span Programs.*

34. BIRS Computational Complexity Workshop 16w5044
    BIRS Centre, Banff, Canada (2016)
    Invited Speaker.
    Seminar Title: *Unified Lower Bounds for Monotone Computation.*

35. St. Petersburg Low Depth Complexity Workshop
    St. Petersburg, Russia (2016)
    Invited Speaker.
    Seminar Title: *Unified Lower Bounds for Monotone Computation.*

36. Third Annual Heidelberg Laureate Forum
    Heidelberg, Germany (2015)
    Participant.

37. China Theory Week
    Shanghai Jiao Tong University, Shanghai, China (2015)
    Invited Speaker.
    Seminar Title: *Path Graphs, Clique Trees, and Flowers.*

Publications.

Author order is alphabetical in theoretical computer science. This convention is only broken in rare circumstances, such as emphasizing an outstanding contribution by a student. Publications where alphabetical order was broken in this way have been indicated with a (*). In the publication list below, underlined author names indicate students who completed the research under my supervision.

Refereed Conference Papers. (All papers listed below were accepted for an oral presentation.)

C1. Robert Robere, Iris van Rooij, Todd Wareham. A Change for the Better? Assessing the Computational Cost of Re-representation. *Proceedings of the 11th International Conference on Cognitive Modeling (2012).*

C2. (*) Robert Robere and Tarek Richard Besold. Complex Analogies: Remarks on the Complexity of HDTP. *Proceedings of the 25th Australasian Joint Conference on Artificial Intelligence (AI 2012).*

C3. Tarek Richard Besold and Robert Robere. A note on tractability and artificial intelligence. *Proceedings of the sixth annual conference on Artificial and General intelligence (AGI 2013), pp. 170-173.*

C4. Tarek Richard Besold and Robert Robere. When almost is not even close enough: remarks on the approximability of HDTP. *Proceedings of the sixth annual conference on Artificial and General intelligence (AGI 2013), pp. 11-20.* **(Best Student Paper Award.)**

C5. (*) Yuval Filmus, Toniann Pitassi, Robert Robere and Stephen A. Cook. Average case lower bounds for monotone switching networks. *Proceedings of the 54th annual IEEE Symposium on Foundations of Computer Science (FOCS 2013), pp. 598-607*

C6. (*) Robert Robere, Toniann Pitassi, Benjamin Rossman, and Stephen A. Cook. Exponential lower bounds for monotone span programs. *Proceedings of the 57th annual IEEE Symposium on Foundations of Computer Science (FOCS 2016). pp. 406-415* **(Invited to special journal issue.)**

C7. Toniann Pitassi and Robert Robere. Strongly exponential lower bounds for monotone computation. *Proceedings of the 49th annual ACM Symposium on the Theory of Computing (STOC 2017). pp. 1246-1255*

C8. (*) Edward Zulkoski, Ruben Martins, Christoph Wintersteiger, Robert Robere, Jia Liang, Krzysztof Czarnecki, Vijay Ganesh. Relating complexity-theoretic paramateres with SAT solver performance. *Pragmatics of Constraint Reasoning Workshop (POCR 2017).*

C9. Noah Fleming, Denis Pankratov, Toniann Pitassi, Robert Robere. Random $\Theta(\log n)$-CNFs are hard for cutting planes. *Proceedings of the 58th annual IEEE Symposium on Foundations of Computer Science (FOCS 2017). pp. 109-120.* (**Invited to special journal issue.**)

C10. Paul Beame, Noah Fleming, Russell Impagliazzo, Antonina Kolokolova, Denis Pankratov, Toniann Pitassi and Robert Robere. Stabbing Planes. *Proceedings of the 9th Innovations in Theoretical Computer Science Conference (ITCS 2018). 10:1-20:20*

C11. Toniann Pitassi and Robert Robere. Lifting Nullstellensatz to Monotone Span Programs over any Field. *Proceedings of the 50th annual ACM Symposium on the Theory of Computing (STOC 2018). pp. 1207-1219.*

C12. (*) Robert Robere, Antonina Kolokolova and Vijay Ganesh. The Proof Complexity of SMT Solvers. *Proceedings of the 30th annual International Conference on Computer Aided Verification (CAV 2018). pp. 275-293.*

C13. (*) Edward Zulkoski, Ruben Martins, Christoph Wintersteiger, Robert Robere, Jia Liang, Vijay Ganesh. Extending Learning Sensitive Backdoors with Restarts. *Proceedings of the 24th International Conference on Principles and Practice of Constraint Programming (CP 2018). pp. 453-469.*

C14. Mika Göös, Pritish Kamath, Robert Robere, Dmitry Sokolov. Adventures in Monotone Complexity and TFNP. *Proceedings of the 10th Innovations in Theoretical Computer Science Conference (ITCS 2019). 38:1-38:19*

C15. Susanna de Rezende, Or Meir, Jakob Nordström, Robert Robere. Nullstellensatz size-degree tradeoffs from reversible pebbling. *Proceedings of the 34th Annual Computational Complexity Conference (CCC 2019). 18:1–18:16.*

C16. Anna Gál, Robert Robere. Lower bounds for (Non-monotone) Comparator Circuits. *Proceedings of the 11th Innovations in Theoretical Computer Science conference (ITCS 2020). 58:1–58:13.*

C17. Susanna de Rezende, Or Meir, Jakob Nordström, Toniann Pitassi, Robert Robere. KRW Composition Theorems via Lifting. *Proceedings of the 61st annual IEEE Symposium on Foundations of Computer Science (FOCS 2020). pp. 43–49.*

C18. Susanna de Rezende, Or Meir, Jakob Nordström, Toniann Pitassi, Robert Robere, Marc Vinyals. Lifting with Simple Gadgets and Applications to Circuit and Proof Complexity. *Proceedings of the 61st annual IEEE Symposium on Foundations of Computer Science (FOCS 2020). pp. 24–30.*

C19. Susanna de Rezende, Mika Göös, Jakob Nordström, Toniann Pitassi, Robert Robere, Dmitry Sokolov. Automating Algebraic Proof Systems is NP-Hard. *Proceedings of the 53rd Annual ACM Symposium on Theory of Computing (STOC 2021). pp.209–222.*

C20. Noah Fleming, Mika Göös, Russell Impagliazzo, Toniann Pitassi, Robert Robere, Li-Yang Tan, Avi Wigderson. On the Power and Limitations of Branch-and-Cut. *Proceedings of the 36th annual Computational Complexity Conference (CCC 2021). 6:1–6:30.* (**Invited to special journal issue.**)

C21. Robert Robere and Jeroen Zuiddam. Amortized Circuit Complexity, Formal Complexity Measures, and Catalytic Algorithms. *Proceedings of the 62nd Annual IEEE Symposium on Foundations of Computer Science (FOCS 2021). pp. 759-769.*

C22. Noah Fleming, Mika Göös, Stefan Grosser, Robert Robere. On Semi-Algebraic Proofs and Algorithms. *Proceedings of the 13th Innovations in Theoretical Computer Science conference (ITCS 2022). 69:1–69:25.*

C23. Reyad Abed Elrazik, Robert Robere, Assaf Schuster, Gal Yehuda. Pseudorandom Self-Reductions for NP-Complete Problems. *Proceedings of the 13th Innovations in Theoretical Computer Science conference (ITCS 2022). 65:1–65:12.*

C24. Noah Fleming, Toniann Pitassi, Robert Robere. Extremely Deep Proofs. *Proceedings of the 13th Innovations in Theoretical Computer Science conference (ITCS 2022). 70:1–70:23.*

C25. Mika Göös, Alexandros Hollender, Siddhartha Jain, Gilbert Maystre, William Pires, Robert Robere, Ran Tao. Further Collapses in TFNP. *Proceedings of the 37th annual Computational Complexity Conference (CCC 2022). 33:1-33:15.*

C26. Mika Göös, Alexandros Hollender, Siddhartha Jain, Gilbert Maystre, William Pires, Robert Robere, Ran Tao. Separations in Proof Complexity and TFNP. *Proceedings of the 63rd annual IEEE Symposium on Foundations of Computer Science (FOCS 2022). pp. 1150–1161.*

C27. Elette Boyle, Yuval Ishai, Pierre Meyer, Robert Robere, Gal Yehuda. On Low End Obfuscation and Learning. *Proceedings of the 14th annual Innovations in Theoretical Computer Science Conference (ITCS 2023). 23:1-23:28.*

C28. Ben Davis and Robert Robere. On Coloured TFNP and Propositional Proof Systems. *Proceedings of the 38th annual Computational Complexity Conference (CCC 2023). 36:1–36:21.*

C29. Yuhao Li, William Pires, and Robert Robere. Intersection classes in proof complexity and TFNP. *To appear at the 15th annual Innovations in Theoretical Computer Science Conference (ITCS 2024).*

C30. Noah Fleming, Stefan Grosser, Toniann Pitassi, Robert Robere. Black-box PPP is not Turing-closed. *To appear at the 56th annual ACM Symposium on Theory of Computing (STOC 2024).*

C31. Siddhartha Jain, Jiawei Li, Robert Robere, Zhiyang Xun. On Pigeonhole Principles and Ramsey in TFNP. *To appear at the 65th annual IEEE Symposium on Foundations of Computer Science (FOCS 2024).*

Refereed Journal Articles.

J1. Susanna F. de Rezende, Or Meir, Jakob Nordström, Robert Robere. Nullstellensatz size-degree tradeoffs from reversible pebbling. *comput. complex.* **30**(1):4 (2021).

J2. Noah Fleming, Denis Pankratov, Toniann Pitassi, Robert Robere. Random $\Theta(\log n)$-CNFs are hard for cutting planes. *J. ACM.* **69**(3):1-19 (2022).

J3. Susanna de Rezende, Or Meir, Jakob Nordström, Toniann Pitassi, Robert Robere. KRW Composition Theorems via Lifting. *Comput. Complex.* **33**(1):4 (2024).

J4. Mika Göös, Alexandros Hollender, Siddhartha Jain, Gilbert Maystre, William Pires, Robert Robere, Ran Tao. Further Collapses in TFNP. *SIAM Journal on Computing.* **53**(3):573 – 587 (2024).

J5. Mika Göös, Alexandros Hollender, Siddhartha Jain, Gilbert Maystre, William Pires, Robert Robere, Ran Tao. (In Press). Separations in Proof Complexity and TFNP. *J. ACM.* (2024)

J6. Paul Beame, Noah Fleming, Russell Impagliazzo, Antonina Kolokolova, Denis Pankratov, Toniann Pitassi and Robert Robere. Stabbing Planes. *In Submission.*

Book Chapters.

B1. Tarek R. Besold and Robert Robere. When Thinking Never Comes To A Halt: Using Formal Methods in Making Sure Your AI Gets the Job Done Good Enough. *Fundamental Issues of Artificial Intelligence (2016). Volume 376:43-62.*

Other Publications (Not Refereed).

O1. Susanna de Rezende, Mika Göös, Robert Robere. Proofs, Circuits, and Communication. *SIGACT News Complexity Theory Column, March 2022.*

Manuscripts and Preprints.

M1. Lalla Mouatadid and Robert Robere. Path graphs, clique trees, and flowers. *Manuscript.* (2015).