Mary Wootters

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Education

Ph.D., Mathematics, University of Michigan, 2014.
Advisor: Martin Strauss.
Dissertation: Any errors in this dissertation are probably fixable: topics in probability and error correcting codes.

B.A., Mathematics and Computer Science, Swarthmore College, 2008.

Positions

Stanford University, Assistant Professor of Computer Science and Electrical Engineering. Fall 2016–present.

Carnegie Mellon University, Postdoctoral Fellow. Fall 2014–Summer 2016.

IBM Almaden, Research intern. Summers 2011, 2014.

Simons Institute for the Theory of Computing, Research Fellow. Fall 2013.

Teaching Experience

Stanford University

CS265/CME309, Randomized Algorithms and Probabilistic Analysis. Fall 2020, Winter 2022.

CS161, Design and Analysis of Algorithms. Spring 2017, Fall 2017, Winter 2019, Winter 2020.

CS250/EE387, Algebraic Error-Correcting Codes. Fall 2016, Winter 2018, Winter 2019, Winter 2021, Winter 2022.

CS57N/Phil3N, Randomness: Philosophical and Computational Approaches. IntroSem co-taught with Thomas Icard (Philosophy). Fall 2019, Winter 2022.

COLLEGE102, Citizenship in the 21st Century. Winter 2023.

Carnegie Mellon University

Co-instructor, 15-855, An Introduction to Computational Complexity Theory. *Co-taught with Venkat Guruswami.* Fall 2015.

University of Michigan

Graduate Student Instructor, EECS 574, Complexity theory. *GSI for Yaoyun Shi.* Fall 2011.

Graduate Student Instructor, Math 115, Calculus I. *Primary instructor.* Fall 2009, Spring 2010, Fall 2010, Spring 2011.

Honors, Awards and Fellowships

James L. Massey Research and Teaching Award for Young Scholars, 2022.
IEEE Information Theory Society.

Tau Beta Pi Teaching Honor Roll, 2018–2019; 2019–2020; 2020–2021.
Stanford University Chapter of Tau Beta Pi.

Google Research Scholar, 2021.
Google.

NSF CAREER Award, 2019.
National Science Foundation.

Sloan Research Fellowship, 2019.
Alfred P. Sloan Foundation.

NSF Mathematical Sciences Postdoctoral Research Fellowship, 2014–2016.
National Science Foundation

EATCS Distinguished Dissertation Award, 2015.
European Association of Theoretical Computer Science

Sumner B. Myers Memorial Prize (Best Ph.D. Thesis), 2014.
University of Michigan, Mathematics Department

Graduate Research Fellowship, 2013.
The Simons Institute at Berkeley

Rackham Predoctoral Fellowship, 2013–2014.
University of Michigan, Rackham Graduate School

Karen Rhea Excellence in Teaching Award, 2013.
University of Michigan, Mathematics Department

Letter of commendation for teaching excellence, 2011.
University of Michigan, EECS Department

Graduated with Highest Honors, 2008.
Swarthmore College

Member of Phi Beta Kappa and Sigma Xi, 2008.
Swarthmore College

Alice T. Shafer prize, (honorable mention), 2007.
Association for Women in Mathematics

Students Supervised

Ph.D. Students

Keller Blackwell, Department of Computer Science, Stanford University (Expected Graduation: 2025).

Dorsa Fathollahi, Department of Electrical Engineering, Stanford University (Expected Graduation: 2026).

Margalit Glasgow, Department of Computer Science, Stanford University (Expected Graduation: 2024).

Reyna Hulett, Department of Computer Science, Stanford University **(Ph.D. 2021)**.

Ray Li, Department of Computer Science, Stanford University **(Ph.D. 2022)**.

Yun Liao, Department of Electrical Engineering, Stanford University (Expected Graduation: 2023).

Alexandra Porter, Department of Computer Science, Stanford University **(Ph.D. 2022)**.

Noah Shutty, Department of Physics, Stanford University **(Ph.D. 2022)**.

Shashwat Silas, Department of Computer Science, Stanford University **(Ph.D. 2021)**.

M.S. Research Students

Francisco Pernice (Stanford University), Fall 2021-present.

Jabari Hastings (Stanford University), Summer 2020. *Winner of Stanford CURIS "Outstanding Poster Award", 2020.*

Patrick DeMichelle (Stanford University), Summer 2020.

Ingerid Fosli (Stanford University), Spring 2019.

Luna Frank-Fischer (Stanford University), AY 2016-2017.

Undergraduate Research Students

Luna Yang (Stanford University). Winter 2023.

Francisco Pernice (Stanford University). Summer 2021.

Senem Isik (Stanford University). Summer 2021.

Uma Dayal (Stanford University). Summer 2021. *Winner of Stanford CURIS "Outstanding Poster Award", 2021.*

Amy Kanne (Stanford University). Summer 2020. *Winner of the Math Department's Undergraduate Research Award, 2021.*

Alex Moreira (Stanford University). Summer 2020.

Reese Pathak (Stanford University). Summer 2018.

Joshua Spayd (Stanford University). Summer 2018.

Prasanna Ramakrishnan (Stanford University). Summer 2017.

Professional Service

Conference Program Committees:

2023: STOC, ITCS

2022: ISIT

2021: STOC, ITC, ISIT, RANDOM **(PC Chair)**

2020: SODA, ITC, ISIT, RANDOM

2019: STOC, ITCS, ISIT

2018: STOC, ISIT

2017: COCOON, ITCS

2015: STOC, RANDOM

Other Editorial Work:

Managing Editor, Theory of Computation, 2022–present.

Member, Board of Editors, Theory of Computation, 2019–2022.

Guest editor, RANDOM 2015 special issue of Theory of Computation.

Scientific Organization:

Organizer, Simons Institute Semester on Coding Theory (Spring 2024).

Organizer, STOC/TheoryFest Workshop on Advances in Coding Theory (Summer 2022).

Organizer, special session on coding and optimization at CISS (Spring 2022).

Organizer, mini-symposium on Secret Sharing and Coding Theory at SIAM DM (Summer 2018).

Organizer, workshop on Coding and Information Theory at the Combinatorics and Complexity program at Harvard CMSA (Spring 2018).

Organizer, ICERM workshop on Algorithmic Coding Theory (June 2016).

Other Committees:

Member, ACM Doctoral Dissertation Award Committee, 2022–present.

Member and Social Chair, TheoryFest 2022 Organizing Committee.

Steering Committee, Conference on Information Theoretic Cryptography (ITC), 2019–present.

Organizer, TCS Women, 2021–present.

SIGACT Research Highlights Committee, 2019–2020.

Rising Stars 2017 Organizing Committee.

Publications

Book

Numerical Linear Algebra with Julia. Eric Darve and Mary Wootters. SIAM, 2021.

Refereed conference publications

Note: In theoretical computer science (STOC, FOCS, SODA, ...), refereed conferences are the primary publication venues, and the convention is that authors' names are listed alphabetically. In information theory (ISIT, ITW, Allerton, ...), the author order conveys information.

C1 Francisco Pernice, Ray Li, and Mary Wootters. Efficient Near-Optimal Codes for General Repeat Channels. International Symposium on Information Theory **(ISIT)**, 2022.

C2 Ray Li and Mary Wootters Improved Batch Code Lower Bounds. International Symposium on Information Theory **(ISIT)**, 2022.

C3 Sankeerth Rao Karingula, Alexander Vardy, and Mary Wootters. Lower bounds on the redundancy of linear codes with multiple disjoint repair groups. International Symposium on Information Theory **(ISIT)**, 2022.

C4 Dean Doron and Mary Wootters. High-Probability List-Recovery, and Applications to Heavy Hitters. Proceedings of the 49th EATCS International Colloquium on Automata, Languages and Programming **(ICALP)** 2022.

C5 Margalit Glasgow and Mary Wootters. Asynchronous Distributed Optimization with Randomized Delays. Artificial Intelligence and Statistics Conference (**AISTATS**), 2022.

C6 Noah Shutty and Mary Wootters. Low-Bandwidth Recovery of Linear Functions of Reed-Solomon-Encoded Data. 13th Innovations in Theoretical Computer Science (**ITCS**), 2022.

C7 Ingerid Fosli, Yuval Ishai, Victor Kolobov and Mary Wootters. On the Download Rate of Homomorphic Secret Sharing. 13th Innovations in Theoretical Computer Science (**ITCS**), 2022.

C8 Zeyu Guo, Ray Li, Chong Shangguan, Itzhak Tamo, and Mary Wootters. Improved List-Decodability of Reed-Solomon Codes via Tree Packings. 62nd Annual IEEE Symposium on Foundations of Computer Science **(FOCS)**, 2021.

C9 Reyna Hulett, Shubham Chandak, Mary Wootters. On Coding for an Abstracted Nanopore Channel for DNA Storage. IEEE International Symposium on Information Theory **(ISIT)**, 2021.

C10 Alexandra Porter and Mary Wootters. On Greedy Approaches to Hierarchical Aggregation. IEEE International Symposium on Information Theory **(ISIT)**, 2021.

C11 Jabari Hastings, Amy Kanne, Ray Li, and Mary Wootters. Wedge-Lifted Codes. IEEE International Symposium on Information Theory **(ISIT)**, 2021.

C12 Margalit Glasgow and Mary Wootters. Approximate Gradient Coding with Optimal Decoding. IEEE International Symposium on Information Theory **(ISIT)**, 2021.

C13 Venkatesan Guruswami, Jonathan Mosheiff, Nicolas Resch, Shashwat Silas, and Mary Wootters. Sharp Threshold Rates for Random Codes. 12th Innovations in Theoretical Computer Science **(ITCS)**, 2021.

C14 Noah Shutty, Mary Wootters, and Patrick Hayden. Reliable Computation by Formulas of Noisy AND Gates and Noiseless XOR Gates, with Applications to Quantum Mechanics. 61st Annual IEEE Symposium on Foundations of Computer Science **(FOCS)**, 2020.

C15 Jonathan Mosheiff, Nicolas Resch, Noga Ron-Zewi, Shashwat Silas, Mary Wootters. LDPC Codes Achieve List-Decoding Capacity. 61st Annual IEEE Symposium on Foundations of Computer Science **(FOCS)**, 2020. *Invited to the FOCS 2020 special issue of SICOMP.*

C16 Venkatesan Guruswami, Jonathan Mosheiff, Nicolas Resch, Shashwat Silas, and Mary Wootters. Sharp Threshold Rates for Random Codes. 24th International Conference on Randomization and Computation **(RANDOM)**, 2020.

C17 Anna Gilbert, Albert Gu, Christopher Re, Atri Rudra, Mary Wootters. Sparse Recovery for Orthogonal Polynomial Transformations. 47th International Colloquium on Automata, Languages, and Programming **(ICALP)**, 2020.

C18 Noga Ron-Zewi, Mary Wootters, and Gilles Zémor. Linear-Time Erasure List-Decoding of Expander Codes. IEEE International Symposium on Information Theory **(ISIT)**, 2020.

C19 Shubham Chandak, Joachim Neu, Kedar Tatwawadi, Jay Mardia, Billy Lau, Matthew Kubit, Reyna Hulett, Peter Griffin, Mary Wootters, Tsachy Weissman, Hanlee Ji. Overcoming high nanopore basecaller error rates for DNA storage via basecaller-decoder integration and convolutional codes. 45th International Conference on Acoustics, Speech, and Signal Processing **(ICASSP)**, 2020.

C20 Shubham Chandak, Kedar Tatwawadi, Billy Lau, Matt Kubit, Jay Mardia, Joachim Neu, Peter Griffin, Mary Wootters, Tsachy Weissman, Hanlee Ji. Improved read/write cost tradeoff in DNA-based data storage using LDPC codes. 57th Annual Allerton Conference on Communication, Control, and Computing **(Allerton)**, 2019.

C21 Bruce Spang and Mary Wootters. Unconstraining graph-constrained group testing. International Conference on Randomization and Computation **(RANDOM)**, 2019.

C22 Ray Li and Mary Wootters. Lifted Multiplicity Codes. International Conference on Randomization and Computation **(RANDOM)**, 2019.

C23 Rawad Bitar, Mary Wootters and Salim El Rouayheb. Stochastic Gradient Coding for Straggler Mitigation in Distributed Learning. IEEE Information Theory Workshop **(ITW)**, 2019.

C24 Alexandra Porter and Mary Wootters. Embedded Index Coding. IEEE Information Theory Workshop **(ITW)**, 2019.

C25 D. Muratore, P. Tandon, M. Wootters, E.J. Chichilnisky, S. Mitra and B. Murmann. A Data-Compressive Wired-OR Readout for Massively Parallel Neural Recording. IEEE International Symposium on Circuits and Systems, **(ISCAS)**, 2019.

C26 T. Wu, B. Le, R. Radway, A. Bartolo, W. Hwang, S. Jeong, H. Li, P. Tandon, E. Vianello, P. Vivet, E. Nowak, M. Wootters, H.-S.P. Wong, M. Aly, E. Beigne and S. Mitra. A 43pJ/cycle Non-volatile Microcontroller with 4.7μs Shutdown/Wake-up integrating 2.3 bits-per-cell Resistive RAM and Resilience Techniques. IEEE International Solid-State Circuits Conference **(ISSCC)**, 2019.

C27 Inan, H., P. Kairouz, M. Wootters, and A. Ozgur. On the optimality of the Kautz-Singleton construction in probabilistic group testing. Proceedings of the 56th Annual Allerton Conference on Communication, Control, and Computing **(Allerton)**, 2018.

C28 Kopparty, S., N. Ron-Zewi, S. Saraf, and M. Wootters. Improved Decoding of Folded Reed-Solomon Codes and Multiplicity Codes. Proceedings of the 59th Symposium on Foundations of Computer Science **(FOCS)**, 2018.

C29 Perlstein, J., T. Dean, M. Wootters and A. Goldsmith. Fast blind MIMO decoding through vertex hopping. Proceedings of the 52nd Asilomar Conference on Signals, Systems and Computers **(Asilomar)**, 2018.

C30 Li, R. and M. Wootters. Improved list-decodability of random binary linear codes. Proceedings of the 22nd International Conference on Randomization and Computation **(RANDOM)**, 2018.

C31 Ramakrishnan, P. and M. Wootters. On taking advantage of multiple requests in error correcting codes. Proceedings of the 2018 IEEE International Symposium on Information Theory **(ISIT)**, 2018.

C32 Porter, A., S. Silas and M. Wootters. Load-balanced fractional repetition codes. Proceedings of the 2018 IEEE International Symposium on Information Theory **(ISIT)**, 2018.

C33 Rudra, A. and M. Wootters. Average-radius list-recovery of random linear codes. Proceedings of the 29th Annual ACM-SIAM Symposium on Discrete Algorithms **(SODA)**, 2018. pp.644–662.

C34 Boyle, E., Y. Ishai, R. Pass, and M. Wootters. Can we access a database both locally and privately? Proceedings of the 15th Theory of Cryptography Conference **(TCC)**, 2017. pp. 662–693.

C35 Bartan, B. and M. Wootters. Repairing Multiple Failures for Scalar MDS Codes. Proceedings of the 55th Annual Allerton Conference on Communication, Control, and Computing **(Allerton)**, 2017.

C36 Hulett, R. and M. Wootters. Limitations on the Achievable Repair Bandwidth of Piggybacking Codes with Low Substriping. Proceedings of the 55th Annual Allerton Conference on Communication, Control, and Computing **(Allerton)**, 2017.

C37 Dean, T., M. Wootters, and A. Goldsmith. Blind Joint MIMO Channel Estimation and Decoding. IEEE Global Communications Conference **(GLOBECOM)** 2017.

C38 Hemenway, B., N. Ron-Zewi and M. Wootters. Local list-recovery of high-rate tensor codes and applications. Proceedings of the 58th Symposium on Foundations of Computer Science **(FOCS)**, 2017. pp. 204–215. *Invited to teh FOCS 2017 special issue of SIAM Journal of Computing.*

C39 Frank-Fischer, S.L., V. Guruswami, and M. Wootters. Locality via partially lifted codes. Proceedings of the 21st International Workshop on Randomization and Computation **(RANDOM)**, 2017. pp. 43:1-43:17.

C40 Guruswami, V., and M. Wootters. Repairing Reed-Solomon codes. Proceedings of the 48th Symposium on Theory of Computing **(STOC)**, 2016. pp. 216-226.

C41 Hardt, M., N. Megiddo, C. Papadimitriou, and M. Wootters. Strategic Classification. Proceedings of the 2016 ACM Conference on Innovations in Theoretical Computer Science **(ITCS)**, 2016. pp. 111-122.

C42 Hemenway, B. and M. Wootters. Linear-time list-recovery of high-rate expander codes. Proceedings of the 42nd International Colloquium on Automata, Languages, and Programming **(ICALP)**, 2015. pp. 701–712. *Invited to ICALP 2015's special issue of Information and Computation.*

C43 Rudra, A. and M. Wootters. It'll probably work out: improved list-decoding through random operations. Proceedings of the 2015 Conference on Innovations in Theoretical Computer Science **(ITCS)**, 2015. pp. 287-296.

C44 Hardt, M. and M. Wootters. Fast Matrix Completion Without the Condition Number. Proceedings of the 27th Conference on Learning Theory **(COLT)**, 2014. pp 638–678.

C45 Rudra, A. and M. Wootters. Every list-decodable code for high noise has abundant near-optimal rate puncturings. Proceedings of the 46th ACM Symposium on Theory of Computing **(STOC)**, 2014. pp. 764–773.

C46 Nelson, J., E. Price, and M. Wootters. New constructions of RIP matrices with fast multiplication. Proceedings of the 25th ACM-SIAM Symposium on Discrete Algorithms **(SODA)**, 2014. pp. 1515–1528.

C47 Duma, D., M. Wootters, A.C. Gilbert, H. Ngo, A. Rudra, M. Alpert, T.J. Close, G. Ciardo, and S. Lonardi. Accurate decoding of pooled sequenced data using compressed sensing. Proceedings of the 13th International Workshop on Algorithms in Bioinformatics **(WABI)**, 2013. pp. 70–84.

C48 Hemenway, B., R. Ostrovsky, and M. Wootters. Local correctibility of expander codes. Proceedings of the 40th International Colloquium on Automata, Languages, and Programming **(ICALP)**, 2013, pp. 540–551. *Invited to ICALP 2013's special issue of Information and Computation.*

C49 Davenport, M.A. , Y. Plan, E. van den Berg, and M. Wootters. One-Bit Matrix Completion. Workshop on Signal Processing with Adaptive Sparse Structured Representations **(SPARS)**, 2013.

C50 Wootters, M., Y. Plan, M.A. Davenport, E. van den Berg. Lower bounds for quantized matrix completion. Proceedings of IEEE International Symposium on Information Theory **(ISIT)**, 2013.

C51 Wootters, M. On the list decodability of random linear codes with large error rates. Proceedings of the 45th ACM Symposium on Theory of Computing **(STOC)**, 2013, pp. 853–860.

C52 Gilbert, A.C., B. Hemenway, M.J. Strauss, D.P. Woodruff, and M. Wootters. Reusable low-error compressive sampling schemes through privacy. Proceedings of IEEE Statistical Signal Processing Workshop **(SSP)**, 2012, pp. 536–539.

C53 Hemenway, B., R. Ostrovsky, M.J. Strauss, and M. Wootters. Public key locally decodable codes with short keys. Proceedings of the 15th International Workshop on Randomization and Computation **(RANDOM)** 2011, pp. 605–615.

Journal publications

J1 Bounds for List-Decoding and List-Recovery of Random Linear Codes. Venkatesan Guruswami, Ray Li, Jonathan Mosheiff, Nicolas Resch, Shashwat Silas, and Mary Wootters. *IEEE Transactions on Information Theory*, 2021.

J2 Threshold Rates for Properties of Random Codes. Venkatesan Guruswami, Jonathan Mosheiff, Nicolas Resch, Shashwat Silas, Mary Wootters. *IEEE Transactions on Information Theory*, 2021.

J3 LDPC Codes Achieve List-Decoding Capacity. Jonathan Mosheiff, Nicolas Resch, Noga Ron-Zewi, Shashwat Silas, Mary Wootters. *FOCS 2020 Special Issue of SICOMP, to appear.*

J4 Approximate Gradient Coding with Optimal Decoding. Margalit Glasgow and Mary Wootters. *JSAIT Special Issue on Coded Computation,* 2021.

J5 Linear-Time Erasure List-Decoding of Expander Codes. Noga Ron-Zewi, Mary Wootters, and Gilles Zémor. *IEEE Transactions on Information Theory*, 2021.

J6 Superbridge and bridge indices for knots. Colin Adams, Nikhil Agarwal, Rachel Allen, Tirasan Khandhawit, Alex Simons, Rebecca Winarski, Mary Wootters. *Journal of Knot Theory and its Ramifications*, 2021. *Note: I worked on this project at the SMALL REU at Williams College in 2007 as an undergraduate—it was finally published 14 years later!*

J7 Illusion of large on-chip memory by networked computing chips for neural network inference. Robert M. Radway, Andrew Bartolo, Paul C. Jolly, Zainab F. Khan, Binh Q. Le, Pulkit Tandon, Tony F. Wu, Yunfeng Xin, Elisa Vianello, Pascal Vivet, Etienne Nowak, H.-S. Philip Wong, Mohamed M. Sabry Aly, Edith Beigne, Mary Wootters, Subhasish Mitra. *Nature Electronics*, 2021.

J8 Hermitian-Lifted Codes. Hiram H. López, Beth Malmskog, Gretchen L. Matthews, Fernando Piñero-González, Mary Wootters. *Designs, Codes and Cryptography*, 2021.

J9 Improved list-decodability of random linear binary codes Ray Li and Mary Wootters. *IEEE Transactions on Information Theory,* 2021.

J10 Embedded Index Coding Alexandra Porter and Mary Wootters *IEEE Transactions on Information Theory,* 2020.

J11 Weighted matrix completion from non-random, non-uniform sampling patterns Simon Foucart, Deanna Needell, Reese Pathak, Yaniv Plan, Mary Wootters. *IEEE Transactions on Information Theory,* 2021.

J12 Lifted Multiplicity Codes Ray Li and Mary Wootters. *IEEE Transactions on Information Theory.* 2021.

J13 Stochastic Gradient Coding for Straggler Mitigation in Distributed Learning. Rawad Bitar, Mary Wootters and Salim El Rouayheb. *IEEE Journal on Selected Applications in Information Theory, Special Issue on Deep Learning: Mathematical Foundations and Applications to Information Science,* 2020.

J14 A Data-Compressive Wired-OR Readout for Massively Parallel Neural Recording. D. Muratore, P. Tandon, M. Wootters, E.J. Chichilnisky, S. Mitra and B. Murmann. *IEEE Transactions on Biomedical Circuits and Systems,* 2019.

J15 Fast, Blind MIMO Decoding Through Vertex-Hopping Tom Dean, Jonathan Perlstein, Mary Wootters and Andrea Goldsmith *IEEE Transactions on Wireless Communications,* 2019.

J16 Huseyin A. Inan, Peter Kairouz, Mary Wootters, Ayfer Ozgur. On the Optimality of the Kautz-Singleton Construction in Probabilistic Group Testing. *IEEE Transactions on Information Theory,* 2019.

J17 Alessandro Grossi, Elisa Vianello, Mohamed M. Sabry, Marios Barlas, Laurent Grenouillet, Jean Coignus, Edith Beigne, Tony Wu, Binh Q. Le, Mary K. Wootters, Cristian Zambelli, Etienne Nowak, Subhasish Mitra. Resistive RAM Endurance: Array-Level Characterization and Correction Techniques Targeting Deep Learning Applications. *IEEE Transactions on Electron Devices,* Vol. 66, Issue 3, 2019. pp. 1281-1288.

J18 Mohamed M. Sabry Aly, Tony F. Wu , Andrew Bartolo, Yash H. Malviya, William Hwang, Gage Hills , Igor Markov, Mary Wootters, Max M. Shulaker, H.-S. Philip Wong, and Subhasish Mitra. The N3XT Approach to Energy-Efficient Abundant-Data Computing. *Proceedings of the IEEE* Vol. 107, Issue 1, 2018. pp. 19-48.

J19 Dean, T., M. Wootters, and A. Goldsmith. Blind Joint MIMO Channel Estimation and Decoding. *IEEE Transactions on Information Theory,* Vol. 65, Issue 4, 2018. pp. 2507-2524.

J20 Mardia, J., B. Bartan and M. Wootters. Repairing Multiple Failures for Scalar MDS Codes. *IEEE Transactions on Information Theory,* Vol. 65, Issue 5, 2018. pp. 2661-2672.

J21 Hemenway, B. and M. Wootters. Linear-time list-recovery of high-rate expander codes. *Information and Computation*, Vol. 261, 2018. pp. 202–218.

J22 Baraniuk, R., S. Foucart, D. Needell, Y. Plan, and M. Wootters. One-bit compressed sensing of dictionary-sparse signals. *Information and Inference,* Vol. 7, Issue 1, 2017. pp. 83–104.

J23 Guruswami, V. and M. Wootters. Repairing Reed-Solomon Codes. *IEEE Transactions on Information Theory,* Vol. 63, Issue 9, 2017. pp. 5684–5698.

J24 Baraniuk, R., S. Foucart, D. Needell, Y. Plan, and M. Wootters. Exponential Decay of Reconstruction Error from Binary Measurements of Sparse Signals. *IEEE Transactions on Information Theory,* Vol. 63, Issue 6, 2017. pp. 3368–3385.

J25 Davenport, M.A. , Y. Plan, E. van den Berg, and M. Wootters. 1-Bit Matrix Completion. *Information and Inference,* Vol. 3, Issue 3, 2014. pp. 189–223. *Shortlisted for Information and Inference Best Paper Award (second place).*

J26 Hemenway, B., R. Ostrovsky, and M. Wootters. Local correctibility of expander codes. *Information and Computation,* Vol. 243, 2015. pp. 178–190.

J27 Hemenway, B., C.A. Miller, Y. Shi, and M. Wootters. On optimal entanglement assisted one-shot classical communication. *Physical Review A,*87, 062301, 2013.

J28 Shimamoto, D., and M. Wootters, Configuration spaces of convex and embedded polygons in the plane. *Geometriae Dedicata,* Vol. 172, Issue 1, 2014. pp. 121–134. *(Based on work done as an undergraduate at Swarthmore College)*

Invited Talks

"How do we efficiently compute on encoded data?" Plenary Talk, 17th International Computer Science Symposium in Russia (CSR 2022), June 2022.

"Coding Theory for Storage and Computation" Invited Talk, Simons Institute 10th Anniversary Symposium, May 2022.

"Thresholds for Random Subspaces." Oberwolfach Workshop on Complexity, November 2021.

"Low-bandwidth evaluation of linear functions of Reed-Solomon-encoded data". Cornell FIND Seminar, October 2021.

"Low-bandwidth evaluation of linear functions of Reed-Solomon-encoded data". Harvard Theory Seminar, October 2021.

"List-Decodability of Random Ensembles of Codes." Plenary talk, SIAM Conference on Discrete Mathematics, July 2021.

"Locality in Coding Theory: Disjoint Repair Groups and Lifted Codes." Invited Talk at the Workshop on Local Algorithms (WOLA). Online, June 2021.

"LDPC Codes Achieve List-Decoding Capacity." Joint Mathematics Meetings (invited talk at Special Session on Coding Theory and Applications), January 2021.

"Thresholds for Random Subspaces (aka LDPC Codes Achieve List-Decoding Capacity)". IAS CSDM Seminar, November 2020.

"Sharp Thresholds for Random Subspaces, and Applications." MIT Stochastics and Statistics Seminar, November 2020.

"Sharp thresholds for reliable computation from noisy gates and applications to quantum nonlocality." MIT LIDS Seminar, November 2020.

"Thresholds for Random Subspaces and Applications." University of Maryland CCSP Seminar, November 2020.

"Sharp Thresholds for Random Subspaces, and Applications." Berkeley Theory Seminar, November 2020.

"LDPC Codes achieve list-decoding capacity." AMS Fall Southeastern Sectional Meeting, October 2020.

"The Power of Polynomials." Colorado College Math/CS Colloquium, 2020.

"Sharp Thresholds for Random Subspaces, and Applications." Simons Institute workshop on concentration of measure phenomena, October 2020.

"Sharp Thresholds for Random Subspaces, and Applications." Boston University Theory Seminar, October 2020.

"Fun Facts about Polynomials (and applications)." IBM Workshop on the Informational Lens, September 2020.

"Sparse Recovery for Orthogonal Polynomial Transforms." One World Mathematics of Information, Data, and Signals (1W-MINDS) Seminar. Online, July 2020.

"List-Decodability of Structured Ensembles of Codes." Mathematical Foundations of Computer Science (MFCS) Keynote. Online, August 2020.

"Some Open Questions in Error Correcting Codes." Simons Institute Bootcamp on High-Dimensional Expansion and Error Correcting Codes. Berkeley, CA. July 2019.

"Fun Facts about Polynomials (and applications)." Oxford Women in Computer Science (OxWoCS) speaker series. Oxford, UK. May 2019.

"Weighted Recovery of Low-Rank Matrices from Fixed Sampling Patterns." AMS Sectional Special Session on Sparsity, Randomness and Optimization. Honolulu, HI. March 2019.

"Improved Decoding of Folded Reed-Solomon and Multiplicity Codes." Technion Coding Theory Seminar, Haifa, Israel. December 2018.

"Two Stories about Group Testing." Berkeley BLISS Seminar, Berkeley CA. November 2018.

"Improved Decoding of Folded Reed-Solomon and Multiplicity Codes." Georgia Tech ARC Colloquium, Atlanta, GA. October 2018.

"Cryptography, Local Decoding, and Distributed Storage." Beyond Crypto: A TCS Perspective workshop at CRYPTO. Santa Barbara, CA. August 2018.

"New Tricks for Old Codes." The Shannon Channel, The Internet. April 2018.

"How to Communicate in a Noisy Bar." Taste of Science, Scotty's Pub, Palo Alto, CA. February 2018.

"Regenerating Codes for Distributed Storage." Cisco, San Jose, CA. August 2017.

"Regenerating Codes for Distributed Storage." IEEE Information Theory Society, Silicon Valley Chapter, Santa Clara, CA. May 2017.

"List-recoverability of Random Linear Codes." Simons Institute Workshop on Expanders and Extractors, Berkeley, CA. February 2017.

"Repairing Reed-Solomon Codes." Conference in honor of Eric Allender and Mike Saks, DIMACS, New Brunswick NJ. January 2017.

"Repairing Reed-Solomon Codes." Session on Coding for Modern Applications, Joint Math Meetings, Atlanta Georgia. January 2017.

"Error Error Error Correcting Correcting Correcting Codes Codes Codes." Simons Institute Theoretically Speaking Series, Berkeley, CA. October 19, 2016.

"Reed-Solomon Codes and Distributed Storage." PCMI Research Program, Park City, UT. July 1, 2016.

"Chaining and list-decoding." Workshop on Chaining Methods in Computer Science, Cambridge, MA. June 23, 2016.

"Repairing Reed-Solomon Codes." Simons Information Theory Reunion Workshop, Berkeley, CA. June 7, 2016.

"Locality in error-correcting codes." Women in Theory workshop, Berkeley, CA. May 25, 2016.

"Repairing Reed-Solomon Codes." Penn State Theory Seminar, State College, PA. September 21, 2015.

"Repairing Reed-Solomon Codes." CMU Theory Lunch, Pittsburgh, PA. September 16, 2015.

"New Tricks for Expander Codes." Stanford theory seminar, Palo Alto, CA. May 7, 2015.

"List-decodability of structured random codes." UMich Math Colloquium, Ann Arbor, MI. March 10, 2015.

"New Tricks for Expander Codes." Workshop on coding from theory to practice, Simons Institute, Berkeley, CA. February 12, 2015.

"List Recovery of Expander Codes." ITA, San Diego, CA. February 3, 2015.

"List-decodability of structured random codes." Bar Ilan University, Israel. January 15, 2015.

"Fast Matrix Completion without the Condition Number." University of Texas WCNG Seminar, Austin, TX. December 5, 2014.

"Fast Matrix Completion without the Condition Number." UMich Theory Seminar, Ann Arbor, MI. November 21, 2014.

"List-decodability of structured random codes." UPenn Theory Seminar, Philadelphia, PA. October 24, 2014.

"List-decodability of structured random codes." TCS+ Seminar, The Internet. October 8, 2014.

"List-decodability of structured random codes." CMU Theory Lunch, Pittsburgh, PA. October 1, 2014.

"Fast Matrix Completion without the Condition Number." IBM Almaden, San Jose CA. August 11, 2014.

"List-decodability of randomly punctured codes." Conference on Algebra, Codes and Networks. Bordeaux, France. June 19, 2014.

"Exponentially decaying error via adaptive quantization in one-bit compressed sensing." AMS Spring Central Sectional Meeting, Special Session on Approximation Theory in Signal Processing, Texas Tech, Lubbock, TX. April 11, 2014.

"List-decodability of randomly punctured codes." Institute for Advanced Study, Princeton, NJ. March 24, 2014.

"Every list-decodable code for high noise has abundant near-optimal rate puncturings." Workshop on Complexity and Coding Thery, USCD, San Diego, CA. January 8, 2014.

"High dimensional probability in theoretical computer science."" SPARC Workshop on Coding, Complexity and Sparsity, University of Michigan, Ann Arbor, MI. August 5, 2013.

"Local decodability of expander codes." CSE Department, University at Buffalo (SUNY), Buffalo, NY. June 26, 2013.