

Luca Trevisan — Curriculum Vitae

Bocconi University
Department of Decision Sciences
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Research Interests: Computational Complexity, Algorithms, Combinatorics.

Education

1997. PhD in Computer Science. University of Rome *La Sapienza*. Advisor: Pierluigi Crescenzi.

1993. Laurea (B.Sc.) in Computer Science. University of Rome *La Sapienza*.

Honors and Awards (selected)

2021. Fellow of the ACM

2019. ERC Advanced Grant

2012. Erdős Lecturer – Hebrew University

2006. Invited Speaker – International Congress of Mathematicians

2000. Oberwolfach Prize

2000. Sloan Research Fellowship

1997. Best ACM STOC'97 Student Paper Award

Positions Held

2019–present Professor. Bocconi University

2014–2019 Professor. U.C. Berkeley

2014– 2019. Senior Scientist. Simons Institute for the Theory of Computing

2010–2014 Professor. Stanford University

2009– 2010 Professor. U.C. Berkeley

Fall 2007. Member. Institute for Advanced Study, Princeton

Fall 2006. Member. IPAM special program on cryptography

2004–2009 Associate Professor. U.C. Berkeley

2000-2004. Assistant Professor. U.C. Berkeley

1999-2000. Assistant Professor. Columbia University.

1998. Post-doc Fellow. DIMACS Center.

1997-1998. Post-doc Fellow. Massachusetts Institute of Technology.

Professional Activity

Editorial Boards:

- Journal of the ACM (retired)
- ACM Transactions on Computation Theory
- SIAM Journal on Computing

Conference Program Committee Chair:

- TAMC 2013
- IEEE FOCS 2010
- IEEE Computational Complexity Conference 2005
- Random: 2005 and 2001

Conference Program Committee Member:

- ACM STOC: 2022, 2018, 2003, and 2008
- IEEE FOCS: 2007 and 1999
- ICALP: 2008, 2000
- IEEE Computational Complexity Conference: 2000
- Theory of Cryptography Conference: 2006
- Approx: 2004
- IFIP TCS: 2002
- TAMC: 2008 and 2007
- LATIN: 2006

Invited Talks at International Meetings (Selected)

AMS-MAA Joint Meeting – Special Session on Pseudorandomness
(Seattle, WA) January 6-9 2016

AMS-MAA Joint Meeting – Current Events Session
(New Orleans, LA) January 6-9, 2011

IEEE Foundations of Computer Science (FOCS) Conference
(Philadelphia, PA) October 25-28, 2008.

International Congress of Mathematicians
(Madrid, Spain) August 22-30, 2006.

List of Publications

Books Edited

- [B1] (with M. Goemans, K. Jansen and J.D.P. Rolim.) Approximation, Randomization and Combinatorial Optimization, Proceedings of APPROX 2001 and RANDOM 2001, Lecture Notes in Computer Science 2129, Springer, 2001.
- [B2] (with C. Chekuri, K. Jansen and J.D.P. Rolim.) Approximation, Randomization and Combinatorial Optimization, Proceedings of APPROX 2005 and RANDOM 2005, Lecture Notes in Computer Science 3624, Springer, 2005
- [B3] (with T.-H. Hubert Chan and Lap Chi Lau) Theory and Applications of Models of Computation, 10th International Conference, TAMC 2013, Hong Kong, China, May 20-22, 2013. Proceedings. Lecture Notes in Computer Science 7876, Springer 2013

Papers Appeared in Refereed Journals

- [J1] A Note on Minimum-Area Upward Drawing of Complete and Fibonacci Trees. *Information Processing Letters*, **57**(5):231-236, 1996.
- [J2] (with P. Crescenzi) On the Distributed Decision-Making Complexity of the Minimum Vertex Cover Problem. *RAIRO Theoretical Informatics and Applications*, **30**:431-441, 1996.
- [J3] (with M. Cesati.) On the Efficiency of Polynomial Time Approximation Schemes. *Information Processing Letters* **64**(4):165–171, 1997.
- [J4] Parallel Approximation Algorithms by Positive Linear Programming. *Algorithmica* **21**:72–88, 1998.
- [J5] (with F. Khafa.) The Parallel Complexity of Positive Linear Programming. *Parallel Processing Letters*, **8**(4):527–533, 1998.
- [J6] (with P. Crescenzi, V. Kann and R. Silvestri.) Structure in Approximation Classes. *SIAM J. on Computing* **28**(5):1759–1782, 1999.
- [J7] (with A.E. Andreev, A.E.F. Clementi and J.D.P. Rolim.) Weak Random Sources, Hitting Sets, and BPP Simulations. *SIAM J. on Computing*, **28**(6):2103–2116, 1999.
- [J8] (with A.E.F. Clementi.) Improved Non-Approximability Results for Minimum Vertex Cover with Density Constraints. *Theoretical Computer Science*, **225**(1–2):113-128, 1999.
- [J9] (with P. Crescenzi.) MAXNP-completeness Made Easy. *Theoretical Computer Science*, **225**(1–2):65–79, 1999.

- [J10] (with P. Crescenzi.) On Approximation Scheme Preserving Reducibility and its Applications *Theory of Computing Systems*, **33**(1):1–16, 2000.
- [J11] (with G.B. Sorkin, M. Sudan and D.P. Williamson.) Gadgets, Approximation, and Linear Programming. *SIAM J. on Computing*, **29**(6):2074–2097, 2000.
- [J12] (with M. Boreale.) A Complexity Analysis of Bisimulation for Value-Passing Processes. *Theoretical Computer Science*, **238**(1-2):313-345, 2000.
- [J13] Approximating Satisfiable Satisfiability Problems. *Algorithmica*, **28**(1):145–172, 2000.
- [J14] When Hamming Meets Euclid: The Approximability of Geometric TSP and Steiner Tree. *SIAM J. on Computing*, **30**(2):475-485, 2001.
- [J15] (with M. Sudan and S. Vadhan) Pseudorandom Generators without the XOR Lemma. *J. of Computer and System Sciences*, **62**(2):236-266, 2001.
- [J16] (with S. Khanna, M. Sudan and D. Williamson) The Approximability of Constraint Satisfaction Problems. *SIAM J. on Computing*, **30**(6):1863–1920, 2001.
- [J17] (with J. Diaz, J. Petit, and M. Serna) Approximating Layout Problems on Random Graphs. *Discrete Mathematics*, **235**(1-3):245-253, 2001.
- [J18] (with P. Crescenzi, R. Silvestri) On Weighted vs Unweighted Versions of Combinatorial Optimization Problems. *Information and Computation*, **167**(1): 10-26, 2001.
- [J19] Extractors and Pseudorandom Generators. *J. of the ACM*, **48**(4):860-879, 2001.
- [J20] (with. O. Goldreich) Three Theorems Regarding Testing Graph Properties. *Random Structures and Algorithms* **23**(1):23-57, 2003.
- [J21] On Local versus Global Satisfiability. *SIAM J. on Discrete Mathematics* **17**(4):541-547, 2004.
- [J22] (with M. Serna and F. Xhafa) The Parallel Approximability of Non-Boolean Satisfiability Problems and Restricted Integer Programming. *Theoretical Computer Science* **332**(1-3):123-139, 2005.
- [J23] (with C. Schallhart) Approximating Succinct MaxSat. *J. of Logic and Computation*, **15**:551-557, 2005.
- [J24] (with B. Chazelle and R. Rubinfeld.) Approximating the minimum spanning tree weight in sublinear time. *SIAM J. On Computing*, **34**(6):1370-1379, 2005.
- [J25] (with S. Vadhan and D. Zuckerman.) Compression of samplable sources. *Computational Complexity*, **14**(3):186–227, 2005.
- [J26] (with R. Gennaro, Y. Gertner, J. Katz) Bounds on the Efficiency of Generic Cryptographic Constructions. *SIAM Journal on Computing*, **35**(1):217-246, 2005.

- [J27] (with E. Mossel and A. Shpilka) On ϵ -biased generators in NC0. *Random Structures and Algorithms*, **29**(1):56-81, 2006
- [J28] (with A. Bogdanov.) On Worst-Case to Average-Case Reductions in NP. *SIAM J. on Computing*, **36**(4): 1119-1159, 2006
- [J29] (with O. Goldreich, H. Karloff and L. Schulman.) Lower Bounds for Linear Locally Decodable Codes and Private Information Retrieval. *Computational Complexity*, **15**(3): 263-296, 2006.
- [J30] (with S. Vadhan.) Pseudorandomness and Average-Case Complexity via Uniform Reductions. *Computational Complexity* **16**(4): 331-364, 2007
- [J31] Approximation Algorithms for Unique Games. *Theory of Computing* **4**:111–128, 2008.
- [J32] (with A. Samorodnitsky) Gowers Uniformity, Influence of Variables, and PCPs. *SIAM J. on Computing*, **39**(1): 323-360, 2009.
- [J33] Max Cut and the Smallest Eigenvalue. *SIAM J. Computing* **41**(6): 1769-1786, 2012
- [J34] (with J. Cook, O. Etesami, R. Miller) On the One-Way Function Candidate Proposed by Goldreich. *ACM Transactions on Computing Theory* **6**(3): 14:1-14:35, 2014
- [J35] (with J. R. Lee and S. Oveis Gharan) Multiway Spectral Partitioning and Higher-Order Cheeger Inequalities. *J. ACM* **61**(6): 37:1-37:30, 2014
- [J36] (with A. Nayebi, S. Aaronson and A. Belovs) Quantum lower bound for inverting a permutation with advice. *Quantum Information and Computation* **15**(11–12): 901-913, 2015
- [J37] (with A. E. F. Clementi, and R. Silvestri) Information spreading in dynamic graphs. *Distributed Computing* **28**(1): 55-73, 2015
- [J38] (with S. Oveis Gharan) A New Regularity Lemma and Faster Approximation Algorithms for Low Threshold Rank Graphs. *Theory of Computing* **11**: 241-256, 2015
- [J39] (with N. Agarwal, G. Kindler and A. Kolla) Unique Games on the Hypercube. *Chicago J. Theor. Comput. Sci.* **2015**, 2015
- [J40] (with R. Andersen, S. Oveis Gharan, and Y. Peres) Almost Optimal Local Graph Clustering Using Evolving Sets. *J. of the ACM* **63**(2), 2016
- [J41] (with L. Becchetti, A. Clementi, E. Natale, F. Pasquale, R. Silvestri) Simple dynamics for plurality consensus. *Distributed Computing* **30**(4): 293-306, 2017
- [J42] (with P. Chalermsook, M. Cygan, G. Kortsarz, B. Laekhanukit, P. Manurangsi, D. Nanongkai) From Gap-Exponential Time Hypothesis to Fixed Parameter Tractable Inapproximability: Clique, Dominating Set, and More. *SIAM J. Comput.* **49**(4): 772-810 (2020)

- [J43] (with L. Becchetti, A. Clementi, E. Natale, F. Pasquale) Find Your Place: Simple Distributed Algorithms for Community Detection. *SIAM J. Comput.* **49**(4): 821-864 (2020)

Papers Appeared in Refereed Conferences

Full versions of papers marked with a ‘*’ are listed above

- [C1*] (with P. Crescenzi.) Minimum Vertex Cover, Distributed Decision Making, and Communication Complexity. In *Proc. of 20th Workshop on Graph-Theoretic Concepts in Comp. Sci.* LNCS 903, Springer-Verlag, pp. 130-139, 1994.
- [C2*] (with P. Crescenzi.) On Approximation Scheme Preserving Reducibility and its Applications. In *Proc. of the 14th Conf. on Found. of Software Technology and Theoretical Comp. Sci.* LNCS 880, Springer-Verlag, pp. 330-341, 1994.
- [C3*] (with P. Crescenzi, V. Kann and R. Silvestri.) Structure in Approximation Classes. In *Proc. of the 1st Comp. and Combinatorics Conf.* LNCS 959, Springer-Verlag, pp. 539-548, 1995.
- [C4*] (with M. Boreale.) On the Complexity of Bisimilarity for Value-Passing Processes. In *Proc. of the 15th Conf. on Found. of Software Technology and Theoretical Comp. Sci.* LNCS 1026, Springer-Verlag, pp. 294-308, 1995.
- [C5*] (with P. Crescenzi and R. Silvestri.) To Weight or not to Weight: Where is the Question? In *Proc. of the 4th Israeli Symp. on Theory of Comp. and Systems.* IEEE, pp. 68-77, 1996.
- [C6*] (with A.E.F. Clementi.) Improved Non-approximability Results for Vertex Cover Problems with Density Constraints. In *Proc. of the 2nd Comp. and Combinatorics Conf.* LNCS 1090, Springer-Verlag, pp. 333-342, 1996.
- [C7*] (with M. Boreale.) Bisimilarity Problems Requiring Exponential Time. In *Proc. of the 21st Symp. on Mathematical Foundations of Comp. Sci. (MFCS'96).* LNCS 1113, Springer-Verlag, pp. 230-241, 1996.
- [C8*] Positive Linear Programming, Parallel Approximation, and PCP's. In *Proc. of the 4th European Symp. on Algorithms (ESA '96).* LNCS 1136, Springer-Verlag, pp. 62-75, 1996.
- [C9*] (with G.B. Sorkin, M. Sudan and D.P. Williamson.) Gadgets, Approximation, and Linear Programming. In *Proc. of the 37th Symp. on Foundations of Comp. Sci. (FOCS'96).* IEEE, pp. 617-626, 1996.
- [C10*] When Hamming Meets Euclid: the Approximability of Geometric TSP and MST. In *Proc. of the 29th Symp. on Theory of Computing (STOC'97).* ACM, pp. 21-29, 1997.

- [C11*] (with S. Khanna and M. Sudan.) Constraint Satisfaction: the Approximability of Minimization Problems. In *Proc. of the 12th Conf. on Computational Complexity*. IEEE, pp. 282–296, 1997.
- [C12*] Approximating Satisfiable Satisfiability Problems. In *Proc. of the 5th European Symp. on Algorithms (ESA '97)*, LNCS 1284, Springer-Verlag, pp. 472–485, 1997.
- [C13*] (with A.E. Andreev, A.E.F. Clementi and J.D.P. Rolim.) Weak Random Sources, Hitting Sets, and BPP Simulations. In *Proc. of the 38th Symp. on Foundations of Computer Science (FOCS'97)*. IEEE, 1997.
- [C14*] (with M. Serna and F. Xhafa.) The Parallel Approximability of Non-Boolean Satisfiability Problems and Restricted Integer Programming. In *Proc. of the 15th Symp. on Theoretical Aspects of Comp. Sci. (STACS'98)*, Springer-Verlag, 1998.
- [C15] Recycling Queries in PCPs and in Linearity Tests. In *Proc. of the 30th Symposium on Theory of Computing (STOC'98)*, ACM, 299–308, 1998.
- [C16] (with V. Guruswami, D. Lewin and M. Sudan.) A Tight Characterization of NP with 3-Query PCPs. In *Proc. of the 39th Symp. on Foundations of Computer Science (FOCS'98)*, IEEE, pp. 8–17, 1998.
- [C17] (with M. Sudan.) Probabilistically Checkable Proofs with Low Amortized Query Complexity. In *Proc. of the 39th Symp. on Foundations of Computer Science (FOCS'98)*, IEEE, pp. 18–27, 1998.
- [C18*] (with S. Vadhan and M. Sudan.) Pseudorandom Generators Without the XOR Lemma. In *Proc. of the 31st Symp. on Theory of Computing (STOC'99)*, ACM, pp. 537–546, 1999.
- [C19*] Construction of Extractors Using Pseudo-Random Generators. In *Proc. of the 31st Symp. on Theory of Computing (STOC'99)*, ACM, pp. 141–148, 1999.
- [C20] (with A. Samorodnitsky.) A PCP Characterization of NP with Optimal Amortized Query Complexity. In *Proc. of the 32nd Symp. on Theory of Computing (STOC'00)*, ACM, pp. 191–199, 2000.
- [C21] (with J. Katz.) On the Efficiency of Local Decoding Procedures for Error-Correcting Codes. In *Proc. of the 32nd Symp. on Theory of Computing (STOC'00)*, ACM, pp. 80–86, 2000.
- [C22] (with S. Vadhan.) Extracting randomness from samplable distribution. In *Proc. of 41st Symp. on Foundations of Comp. Sci. (FOCS'00)*, IEEE, pp. 32–42, 2000.
- [C23*] (with R. Gennaro.) Lower bounds on the efficiency of generic cryptographic constructions. In *Proc. of 41st Symp. on Foundations of Comp. Sci. (FOCS'00)*, IEEE, pp. 305–313, 2000.

- [C24] Non-approximability results for optimization problems on bounded degree instances. In *Proc. of 33rd Symp. on Theory of Computing (STOC'01)*, ACM, pp. 453-461, 2001.
- [C25*] (with B. Chazelle and R. Rubinfeld.) Approximating the minimum spanning tree weight in sublinear time. In *Proc. of ICALP'01*, Springer-Verlag, pp. 190-200, 2001.
- [C26*] (with O. Goldreich.) Three theorems regarding testing graph properties. In *Proc. of 42nd Symp. on Foundations of Comp. Sci. (FOCS'01)*, IEEE, pp. 460-469, 2001.
- [C27*] (with S. Vadhan.) Pseudorandomness and Average-case Complexity via Uniform Reductions. In *Proc. of 17th Conf. on Computational Complexity*, IEEE, pages 129-138, 2002.
- [C28] (with. Z. Bar-Yossef, O. Reingold and R. Shaltiel.) Streaming Computation of Combinatorial Objects. In *Proc. of 17th Conf. on Computational Complexity*, IEEE, pages 165-174, 2002.
- [C29*] (with O. Goldreich, H. Karloff and L. Schulman.) Lower Bounds for Linear Locally Decodable Codes and Private Information Retrieval. In *Proc. of 17th Conf. on Computational Complexity*, IEEE, pages 175-183, 2002.
- [C30] (with Z. Bar-Yossef, T. S. Jayram, R. Kumar and D. Sivakumar) Counting Distinct Elements in a Data Stream. In *Proc. of RANDOM 2002*, Springer-Verlag, pages 1-10, 2002.
- [C31] (with A. Bogdanov and K. Obata) A Lower Bound for Testing 3-Colorability in Bounded-degree Graphs. In *Proc. of 43rd Symp. on Foundations of Comp. Sci. (FOCS'02)*, IEEE, 2002.
- [C32] List Decoding Using the XOR Lemma. In *Proc. of 44th Symp. on Foundations of Comp. Sci. (FOCS'03)*, IEEE, pages 126-135, 2003.
- [C33*] (with E. Mossel and A. Shpilka) On ϵ -Biased Generators in NC0. In *Proc. of 44th Symp. on Foundations of Comp. Sci. (FOCS'03)*, IEEE, pages 136-145, 2003.
- [C34*] (with A. Bogdanov) On Worst Case to Average Case Reductions in NP. In *Proc. of 44th Symp. on Foundations of Comp. Sci. (FOCS'03)*, IEEE, pages 308-317, 2003.
- [C35] (with O. Reingold and S. Vadhan) Notions of Reducibility Between Cryptographic Primitives. In *Proc. of 1st Theory of Cryptography Conf.*, Springer-Verlag, pages 1-20, 2004.
- [C36] (with C. Dwork, R. Shaltiel, and A. Smith) List-Decoding of Linear Functions and Analysis of a Two-Round Zero-Knowledge Argument. In *Proc. of 1st Theory of Cryptography Conf.*, Springer-Verlag, pages 101-120, 2004.

- [C37] (with A. Bogdanov) Lower Bounds for Testing Bipartiteness in Dense Graphs. In *Proc. of 19th Conf. on Computational Complexity*, IEEE, pages 75-81, 2004.
- [C38*] (with S. Vadhan and D. Zuckerman) Compression of Samplable Sources. In *Proc. of 19th Conf. on Computational Complexity*, IEEE, pages 1-14, 2004.
- [C39] A Note on Approximate Counting for k DNF. In *Proc of Random 2004*, Springer-Verlag, 2004.
- [C40] (with H. Lin and H. Wee) On Hardness Amplification of One-Way Functions. In *Proc. of 2nd Theory of Cryptography Conf.*, Springer Verlag, pages 34-49, 2005.
- [C41] On Uniform Amplification of Hardness in NP. In *Proc. of 37th Symp. on Theory of Computing (STOC'05)*, ACM, pages 31-38, 2005.
- [C42] (with L. Fortnow and R. Santhanam) Hierarchies for Semantic Classes. In *Proc. of 37th Symp. on Theory of Computing (STOC'05)*, ACM, pages 348-355, 2005.
- [C43] (with V. Guruswami) The Complexity of Making Unique Choices: Approximating 1-in- k SAT. In *Proc. of Random-Approx 2005*, Springer-Verlag, pages 99-110, 2005.
- [C44*] Approximation Algorithms for Unique Games. In *Proc. of 46th Symp. on Foundations of Comp. Sci. (FOCS'05)*, IEEE, pages 197-205, 2005.
- [C45] (with O. Reingold and S. Vadhan) Pseudorandom Walks in Directed Regular Graphs and L versus RL Problem. In *Proc. of 38th Symp. on Theory of Computing (STOC'06)*, ACM, pages 457-466, 2006.
- [C46*] (with A. Samorodnitsky) Gowers Uniformity, Influence of Variables, and PCPs. In *Proc. of 38th Symp. on Theory of Computing (STOC'06)*, ACM, pages 11-20, 2006.
- [C47] (with G. Schoenebeck and M. Tulsiani) A Linear Round Lower Bound for Lovasz-Schrijver SDP Relaxations of Vertex Cover. In *Proc of Conference on Computational Complexity*, IEEE, pages 205-216, 2007
- [C48] (with G. Schoenebeck and M. Tulsiani) Tight integrality gaps for Lovasz-Schrijver LP relaxations of vertex cover and max cut. In *Proc. of 39th Symp. on Theory of Computing (STOC'07)*, ACM, pages 302-310, 2007
- [C49] (with R. Canetti, R.L. Rivest, M. Sudan, S.P. Vadhan, and H. Wee) Amplifying Collision Resistance: A Complexity-Theoretic Treatment. In *Proc. of CRYPTO'07*, pages 264-283, 2007
- [C50] (with O. Reingold, M. Tulsiani and S. Vadhan) Dense Subsets of Pseudorandom Sets. In *Proc. FOCS'08*, IEEE, pages 76-85, 2008.

- [C51*] (with J. Cook, O. Etesami, and R. Miller) Goldreich’s One-Way Function Candidate and Myopic Backtracking Algorithms. In *Proc. of 6th Theory of Cryptography Conference*, pages 521-538, 2009.
- [C52*] Max Cut and the Smallest Eigenvalue. In *Proc. of STOC’09*, ACM, pages 263–272, 2009.
- [C53] (with S. Lovett, O. Reingold, and S. Vadhan) Pseudorandom Bit Generators That Fool Modular Sums. In *Proc. of APPROX-RANDOM*, pages 615–630, 2009.
- [C54] (with A. De) Extractors Using Hardness Amplification In *Proc. of APPROX-RANDOM*, pages 462–475, 2009.
- [C55] The Program-Enumeration Bottleneck in Average-Case Complexity Theory. In *Proc. of CCC2010*, IEEE, pages 88-95, 2010.
- [C56] (with Anindya De, Omid Etesami and Madhur Tulsiani) Improved Pseudorandom Generators for Depth 2 Circuits. In *in Proc. of APPROX-RANDOM*, pages 504-517, 2010.
- [C57] (with Anindya De and Madhur Tulsiani) Time Space Tradeoffs for Attacks against One-Way Functions and PRGs. In *Proc. of CRYPTO 2010*, pages 649-665, 2010.
- [C58*] (with Andrea E. F. Clementi and Riccardo Silvestri) Information spreading in dynamic graphs. In *Proc. of PODC 2012*, pages 37-46, 2012.
- [C59*] (with James R. Lee and Shayan Oveis Gharan) Multi-way spectral partitioning and higher-order Cheeger inequalities. In *Proc. of ACM STOC 2012*, pages 1117-1130, 2012.
- [C60] (with Parikshit Gopalan, Raghu Meka, Omer Reingold and Salil Vadhan) Better Pseudorandom Generators from Milder Pseudorandom Restrictions. In *Proc. of IEEE FOCS*, 2012.
- [C61*] (with Shayan Oveis Gharan) Approximating the Expansion Profile and Almost Optimal Local Graph Clustering. In *Proc. of IEEE FOCS*, 2012.
- [C62] (with Tsz Chiu Kwok, Lap Chi Lau, Yin Tat Lee, and Shayan Oveis Gharan) Improved Cheeger’s inequality: analysis of spectral partitioning algorithms through higher order spectral gap. In *Proc. of ACM STOC*: pages 11-20, 2013.
- [C63] (with T.K. Xue) A Derandomized Switching Lemma and an Improved Derandomization of AC0. In *Proc. of IEEE Conference on Computational Complexity*, pages 242-247, 2013.
- [C64*] (with Shayan Oveis Gharan) A New Regularity Lemma and Faster Approximation Algorithms for Low Threshold Rank Graphs. In *Proc. of APPROX-RANDOM*, 2013, pages 303-316.

- [C65*] (with Luca Becchetti, Andrea E. F. Clementi, Emanuele Natale, Francesco Pasquale and Riccardo Silvestri) Simple dynamics for plurality consensus. In *Proc. of SPAA*, 2014, pages 247-256
- [C66] (with S. Oveis Gharan) Partitioning into Expanders. In *Proc. of SODA*, 2014, pages 1256-1266
- [C67] (with B. Barak, A. Moitra, R O'Donnell, P. Raghavendra, O. Regev, D. Steurer, A. Vijayaraghavan, D. Witmer, J. Wright) Beating the Random Assignment on Constraint Satisfaction Problems of Bounded Degree. In *Proc. of APPROX-RANDOM*, 2015, pages 110-123
- [C68] (with L. Becchetti, A. E. F. Clementi, E. Natale, and F. Pasquale) Stabilizing Consensus with Many Opinions. In *Proc. of SODA*, 2016, pages 620-635
- [C69] (with G. Kindler and A. Kolla) Approximation of non-boolean 2CSP. In *Proc. of SODA*, 2016, pages 1705-1714
- [C70] (with P. Manurangsi and P. Nakkiran) Near-Optimal UGC-hardness of Approximating Max k -CSP_R. In *Proc. APPROX-RANDOM*, 2016, pages 15:1-28
- [C71] (with M. Borassi and P. Crescenzi) An Axiomatic and an Average-Case Analysis of Algorithms and Heuristics for Metric Properties of Graphs. In *Proc. of SODA*, 2017, pages 920-939
- [C72*] (with L. Becchetti, A. E. F. Clementi, E. Natale, and F. Pasquale) Find Your Place: Simple Distributed Algorithms for Community Detection. In *Proc. of SODA*, 2017, pages 940-959
- [C73*] (with P. Chalermsook, M. Cygan, G. Kortsarz, B. Laekhanukit, P. Manurangsi, and D. Nanongkai) From Gap-ETH to FPT-Inapproximability: Clique, Dominating Set, and More. In *Proc. of FOCS*, 2017, pages 743-754
- [C74] (with N. Srivastava) An Alon-Boppana Type Bound for Weighted Graphs and Lowerbounds for Spectral Sparsification. In *Proc. of SODA*, 2018, pages 1306-1315
- [C75] (with L. Becchetti, A. E. F. Clementi, P. Manurangsi, E. Natale, F. Pasquale, and P. Raghavendra) Average Whenever You Meet: Opportunistic Protocols for Community Detection. In *Proc. of ESA* 2018, pages 7:1-7:13
- [C76] (with P. Manurangsi) Mildly Exponential Time Approximation Algorithms for Vertex Cover, Balanced Separator and Uniform Sparsest Cut. In *Proc. of APPROX-RANDOM*, 2018, pages 20:1-20:17
- [C77] (with C. Carlson, A. Kolla, N. Srivastava) Optimal Lower Bounds for Sketching Graph Cuts. In *Proc. of SODA*, 2019, pages 2565-2569

- [C78] (with N. Bansal and O. Svensson) New Notions and Constructions of Sparsification for Graphs and Hypergraphs. In *Proc. of FOCS*, 2019, pages 910–928
- [C79] (with T. McKenzie and H. Mehta) A New Algorithm for the Robust Semi-random Independent Set Problem. In *Proc. of SODA*, 2020, pages 738-746
- [C80] (with L. Becchetti, A. Clementi, E. Natale, F. Pasquale) Finding a Bounded-Degree Expander Inside a Dense One. In *Proc. of SODA*, 2020, pages 1320-1336
- [C81] (with C. Carlson, A. Kolla, R. Li, N. Mani, B. Sudakov) Lower Bounds for Max-Cut via Semidefinite Programming. In *Proc. of LATIN*, 2020, pages 479-490
- [C82] (with A. Clementi, L. Gualá, E. Natale, F. Pasquale, G. Scornavacca) Consensus vs Broadcast, with and Without Noise. In *Proc. of ITCS*, 2020, pages 42:1-42:13
- [C83] (with S. B. Hopkins and T. Schramm) Subexponential LPs Approximate Max-Cut. In *Proc. of FOCS*, 2020, pages 943-953

Book Chapters

- [BC1] Chapter “Pseudorandomness – Part II” in *Computational Complexity Theory*, Edited by Steven Rudich and Avi Wigderson, pages 289–314, AMS, 2004.
- [BC2] Chapter “Inapproximabilité des problèmes d’optimisation combinatoire” in *Optimisation Combinatoire*, Edited by V.T. Paschos, Hermes, 2005.
- [BC3] (with Oded Goldreich and Madhu Sudan) Chapter “From Logarithmic Advice to Single-Bit Advice.” *Studies in Complexity and Cryptography*, pages 109-113, 2011.
- [BC4] Chapter “Learning Heavy Fourier Coefficients of Boolean Functions.” *Encyclopedia of Algorithms*, pages 1078-1081, 2016.

Surveys

The following papers appeared in refereed journals, unless otherwise noted.

- [S1] (with A.E.F. Clementi and J.D.P. Rolim.) Recent Advances Towards Proving $P = BPP$. *Bulletin of the European Association for Theoretical Computer Science* **64**, pp. 96–103, 1998. (Not refereed)
- [S2] (with J.D.P. Rolim.) A Case Study of De-randomization Methods for Combinatorial Approximation Algorithms. *J. of Combinatorial Optimization* **2(3)**:219–236, 1998. Also in *Proc. of the DIMACS Workshop on Network Design, Connectivity and Facilities Location*, AMS, pp. 319-334, 1998.
- [S3] Interactive and Probabilistic Proof-Checking. *Annals of Pure and Applied Logic*, **104**:325–342, 2000.

- [S4] Some Applications of Coding Theory in Computational Complexity. *Quaderni di Matematica* **13**:347-424, 2004.
- [S5] Average-Case Complexity. *Foundations and Trends in Theoretical Computer Science* **2**(1), 2006.
- [S6] Pseudorandomness and derandomization. *ACM Crossroads* **18**(3): 27-31, 2012. (Not refereed)

Dissertations

- [D1] Communication Complexity and Approximation Algorithms (in Italian). Laurea Dissertation, University of Rome “La Sapienza”, 1993.
- [D2] Reductions and (Non-)Approximability. PhD Dissertation, University of Rome “La Sapienza”, 1997.