

# Curriculum Vitae: Alexis C. Kaporis

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## Contact information

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## Personal information

Born: 4 August 1971

Nationality: Greek

Marital status: Single

## Education

1997: First academic degree; Department of Mathematics; University of Patras

2003: Ph.D.; Department of Computer Engineering & Informatics; University of Patras; Advisor: L.M. Kirousis

Funding:

- 2000-2003 University of Patras - Research Committee, project “C. Carathéodory”
- Research Academic Computer Technology Institute
- 2004-2006 University of Patras -Research Committee, project “Pythagoras”

## Research interests

Phase transition phenomena, Random graphs, Design & analysis of randomized algorithms, World Wide Web, Data structures

## Teaching

Teaching assistant in the undergraduate courses: Discrete Mathematics I, Computational Complexity, Randomized Algorithms, Probability Theory.

## Journal publications

1. A. C. Kaporis, L. M. Kirousis, Y. C. Stamatiou Malvina Vamvakari and M. Zito: *The unsatisfiability threshold revisited*. Discrete Mathematics, Elsevier, to be published
2. A. C. Kaporis, L. M. Kirousis, and Y. C. Stamatiou: *A note on the non-colorability threshold of a random graph*. Electronic Journal of Combinatorics, **7** (1) (2000)
3. A. C. Kaporis, L. M. Kirousis, and I. Giotis: *Corrigendum to: A note on the non-colorability threshold of a random graph*. Electronic Journal of Combinatorics, **7** (1) (2000)
4. A. C. Kaporis, L. M. Kirousis, E. Kranakis, D. Krizanc, Y. C. Stamatiou, E. C. Stavropoulos: *Locating information with uncertainty in fully interconnected networks with applications to world wide web information retrieval*. Computer Journal, **44** 221–229
5. A. C. Kaporis, L. Kirousis, Y. Stamatiou: *Proving conditional randomness using the principle of deferred decisions*. Special Volume on Computational Complexity and Statistical Physics, Santa Fe Institute of Technology, Academic Press, to be published
6. A. C. Kaporis, L. M. Kirousis, E. G. Lalas: *The probabilistic analysis of a greedy satisfiability algorithm*. Random Structures and Algorithms, Wiley, to be published
7. A. C. Kaporis, L. M. Kirousis, E. G. Lalas: *Selecting complementary pairs of literals*. Electronic Notes in Discrete Mathematics (ENDM), Elsevier Science, 16 (2003)

## Conference publications

1. A. C. Kaporis, L. M. Kirousis, Y. C. Stamatiou Malvina Vamvakari and Michele Zito: *The unsatisfiability threshold revisited*. In Proc.: 16<sup>th</sup> Annual IEEE Symposium on Logic in Computer Science (LICS '01) affiliated Workshop on Theory and Applications of Satisfiability Testing (SAT '01), Boston, USA
2. A. C. Kaporis, L. M. Kirousis, Y. C. Stamatiou M. Vamvakari and M. Zito: *Coupon collectors,  $q$ -binomial coefficients and the unsatisfiability threshold*. In Proc.: 7th Italian Conference on Theoretical Computer Science (ICTCS '01), Torino, Italy
3. A. C. Kaporis, L. Kirousis, Y. Stamatiou: *How to prove conditional randomness using the principle of deferred decisions*. In Proc: "Phase Transitions And Algorithmic Complexity", June 3-5, 2002 Institute for Pure and Applied Mathematics (IPAM '02), University of California, Los Angeles, USA

4. A. C. Kaporis, L. Kirousis, Y. Stamatiou, M. Zito: *Upper bounds to the satisfiability threshold: a review of the rigorous results* Workshop on Computational Complexity and Statistical Physics September 4-6, 2001, Santa Fe, New Mexico, USA, Sponsored by Los Alamos National Laboratory, the Santa Fe Institute and the University of New Mexico
5. A. C. Kaporis, L. M. Kirousis, E. G. Lalas: *The Probabilistic analysis of a greedy satisfiability algorithm*. In Proc.: 10<sup>th</sup> Annual European Symposium on Algorithms (ESA '02) Rome, Italy. Lecture Notes in Computer Science, Springer-Verlag, Vol: 2461/2002, January 2002, pp. 574-585  
Also in Proc: 5th International Symposium on the Theory and Applications of Satisfiability Testing (SAT '02), Cincinnati, USA
6. A. C. Kaporis, L. M. Kirousis, E. G. Lalas: *Selecting complementary pairs of literals*. In Proc: 18<sup>th</sup> Annual IEEE Symposium on Logic in Computer Science (LICS '03) affiliated Workshop on Typical case complexity and phase transitions, Ottawa, Canada
7. A. C. Kaporis, L. M. Kirousis, E. G. Lalas: *Lower bounds to the conjectured threshold value for the 3-SAT problem*. In Proc: 4th Pan-Hellenic Logic Symposium (PLS '03), Thessaloniki, Greece
8. A. C. Kaporis, C. Makris, S. Sioutas, A. Tsakalidis, K. Tsihclas, C. Zaroliagis: *Improved bounds for finger search on a RAM*. In Proc. 11<sup>th</sup> Annual European Symposium on Algorithms (ESA '03), Budapest, Hungary
9. A. C. Kaporis, L. M. Kirousis, E. I. Politopoulou, P. G. Spirakis: *Experimental results for Stackelberg scheduling strategies*. In Proc: 4th International Workshop on Efficient and Experimental Algorithms (WEA '05), Springer Verlag, Lecture Notes in Computer Science 3503, 77-89, Santorini Islands, Greece, 2005
10. J. Díaz, G. Grammatikopoulos, A.C. Kaporis, L.M. Kirousis, X. Pérez, D.G. Sotiropoulos.: *5-Regular Graphs are 3-Colorable with Uniformly Positive Probability*. In Proc: 13th Annual European Symposium on Algorithms (ESA '05), Spain, October 3-6, 2005
11. A.C. Kaporis, C. Makris, G. Mavritsakis, S. Sioutas, A. Tsakalidis, K. Tsihclas, C. Zaroliagis: *ISB-Tree: A New Indexing Scheme with Efficient Expected Behaviour*. In Proc: 16th Annual International Symposium on Algorithms and Computation (ISAAC '05), December 19 - 21, 2005, Sanya, Hainan, China
12. J. Díaz, A.C. Kaporis, L.M. Kirousis, X. Pérez.: *Partitioning networks into classes of mutually isolated nodes*. In Proc: European Conference on Complex Systems (ECCS '05), Paris, 14-18 November 2005

## Technical reports

- Kaporis, A.C., Kirousis, L.M., Stamatiou, Y.C.: *A note on the non-colorability threshold of a random graph*. TR, R.A.C.T.I.
- Davrazos, E.N., Kaporis, A.C., Kirousis, L.M.: *Applying the smoothing technique of Achlioptas and Moore to the satisfiability problem*. TR, R.A.C.T.I. 12/5/2002.

## Talks

- Kaporis, A.C.: *Lower bounds to the conjectured 3-SAT threshold value*. Dagstuhl International Conference and Research Center for Computer Science, 30 March, 2003.
- Kaporis, A.C.: *The probabilistic analysis of a greedy satisfiability algorithm for the 3-SAT*. R.A.C.T.I. Seminar, Talk: 15/04/03.
- Kaporis, A.C.: *Threshold phenomenon for the 3-SAT problem*. R.A.C.T.I. Seminar, Talk: 19/2/02.

## Citations per paper

### 0.1 A. C. Kaporis, L. M. Kirousis, Y. C. S. Malvina Vamvakari and M. Zito “*The unsatisfiability threshold revisited*”

Discrete Mathematics, Elsevier, to be published

1. Achlioptas, D., Kirousis, L.M, Kranakis, E., Krizanc, D.: *Rigorous results for random(2+p)-SAT*. Theoretical Computer Science, (265) , Issue 1(2) (2001)
2. Achlioptas, D., Moore, C.: *The asymptotic order of the random k -SAT threshold*. Proc: 43rd Annual IEEE Symposium on Foundations of Computer Science (FOCS '02), Vancouver, Canada, November 16-19, 2002, 779-788
3. Achlioptas, D. Moore, C.: *Random k-SAT: Two Moments Suffice to Cross a Sharp Threshold*. SIAM Journal on Computing, to appear
4. Dubois, O., Boufkhad, Y., Mandler, J.: *Typical random 3-SAT formulae and the satisfiability threshold*. In Proc.: 11th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA '00)
5. Flaxman, A.: *A spectral technique for random satisfiable 3CNF formulas* 14th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA '03)
6. Kautz, H., Selman, B.: *The State of SAT*, Discrete and Applied Mathematics, to appear
7. Krivelevich, M., Vilenchik, D.: *Solving random satisfiable 3CNF formulas in expected polynomial time*. In Proc: ACM-SIAM Symposium on Discrete Algorithms (SODA 06), Miami, Florida, USA
8. Nordström, J.: *Stålmarck's method versus Resolution: A comparative theoretical study*. Master Thesis (Under the supervision of Professor Joseph Håstad). Department of Numerical Analysis & Computing Science, Royal Institute of Technology
9. Wilson, D.B.: *On the critical exponents of random k-SAT*. Random Structures & Algorithms. **21** (2) (2002) 182-195
10. Zito, M.: *An upper bound on the space complexity of random formulae in resolution*. Rairo-Theoretical Informatics and Applications **36** (4) (2002) 329–339

**0.2 A. C. Kaporis, L. M. Kirousis, and Y. C. Stamatiou**  
**“A note on the non-colorability threshold of a random graph”**  
**Electronic Journal of Combinatorics, 7 (1) # R29 (2000)**

1. Achlioptas, D. Moore, C.: *Almost all graphs with average degree 4 are 3-colorable*. Proc. 34th Annual ACM Symposium on Theory of Computing (STOC '02) 199–208
2. Armeni, S., Christodoulakis, D., Kostopoulos, I., Kountrias, P., Stamatiou, Y., Xenos, M.: *An Information Hiding Method Based on Computational Intractable Problems*. Pan-Hellenic Conference on Informatics 2001: 262-278
3. Braunstein, A., Mulet, R., Pagnani, A., Weigt, M., Zecchina, R.: *Polynomial iterative algorithms for coloring and analyzing random graphs*. Physical Review E (68) 036702 (2003)
4. Beacham, A. D.: *The Complexity of Problems without Backbones*, Master Thesis, University of Alberta. Under the supervision of Prof. Joseph Cullberson (2000)
5. Cruz, R.: *Upper bound on the non-colorability threshold of the  $2+p$ -COL problem* 2nd Brazilian Symposium on Graphs, Algorithms and Combinatorics April 27-29, 2005 Angra dos Reis (Rio de Janeiro), Brazil (GRACO 05)
6. Ein-Dor, L., Monasson, R.: *The dynamics of proving uncolourability of large random graphs. I. Symmetric Colouring Heuristic*. J. Phys. A 36, 11055 (2003)
7. Dubois, O., Boufkhad, Y., Mandler, J.: *Typical random 3-SAT formulae and the satisfiability threshold*. In Proc.: 11th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA '00)
8. Dubois, O., Mandler, J.: *On the non-3-colourability of random graphs*. Preprint. Available at <http://xxx.arxiv.cornell.edu/list/math/0209>
9. Fountoulakis, N., McDiarmid, C.: *Upper bounds on the non-3-colourability threshold of random graphs*. Discrete Mathematics and Theoretical Computer Science. **5** (1) (2002) 205–225
10. Fountoulakis, N.: *Doctor of Philosophy Thesis*. St. Hugh's College, Oxford. Advisor: C. McDiarmid, Oxford University
11. Molloy, M.: *Thresholds for colourability and satisfiability for random graphs and Boolean formulae*. Book chapter in Surveys in Combinatorics, J. Hirschfeld (ed.), Cambridge University Press, (2001)
12. Molloy, M.: *When does the giant component bring unsatisfiability?*, Combinatorica (to appear)
13. Mulet, R., Pagnani, A., Weigt, M., Zecchina, R.: *Coloring random graphs*. Physical Review Letters **89** (26) (2002)
14. Nikolettseas, S., Spirakis, P.: *How to certify in deterministic polynomial time the high chromatic number of instances of sparse random graphs*. ALCOMFT-TR-03-181

15. Promel, H.J., Taraz.: *Random graphs, random triangle-free graphs, and random partial orders* A Computational Discrete Mathematics: Advanced Lecture Notes in Computer Science **2122** (2001) 98–118
16. Wilson, D.B.: *On the critical exponents of random  $k$ -SAT*. Random Structures & Algorithms. **21** (2) (2002) 182-195

**0.3 A. C. Kaporis, L. M. Kirousis, and I. Giotis**

***“Corrigendum to: A note on the non-colorability threshold of a random graph”***

**Electronic Journal of Combinatorics, 7 (1) (2000)**

1. Dubois, O., Boufkhad, Y., Mandler, J.: *Typical random 3-SAT formulae and the satisfiability threshold*. In Proc.: 11th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA '00)
2. Dubois, O., Mandler, J.: *On the non-3-colourability of random graphs*. Preprint. Available at <http://xxx.arxiv.cornell.edu/list/math/0209>
3. Fountoulakis, N., McDiarmid, C.: *Upper bounds on the non-3-colourability threshold of random graphs*. Discrete Mathematics and Theoretical Computer Science. **5** (1) (2002) 205–225
4. Fountoulakis, N.: *Doctor of Philosophy Thesis*. St. Hugh’s College, Oxford. Advisor: Colin McDiarmid

**0.4 A. C. Kaporis, L. M. Kirousis, E. Kranakis, D. Krizanc, Y. C. Stamatiou, E. C. Stavropoulos**

***“Locating information with uncertainty in fully interconnected networks with applications to world wide web information retrieval”***

**Computer Journal, 44, 221–229**

1. Pelc, A.: *Searching games with errors - fifty years of coping with liars*. Theoretical Computer Science. **270** (1-2) (2002) 71–109

**0.5 A. C. Kaporis, L.M. Kirousis, Y.C. Stamatiou**

***“Proving conditional randomness using the Principle of Deferred Decisions”***

**Special Volume on Computational Complexity and Statistical Physics, Santa Fe Institute of Technology, Academic Press, to be published**

1. Cocco, S., Monasson, R., Montanari, A., Semerjian, G.: *Approximate analysis of search algorithms with physical methods*. To appear in: Special Volume on Computational Complexity and Statistical Physics, Santa Fe Institute of Technology, Academic Press. Available at <http://www.lpt.ens.fr/monasson/prep.html>
2. Ein-Dor, L., Monasson, R.: *The dynamics of proving uncolourability of large random graphs. I. Symmetric Colouring Heuristic*. J. Phys. A **36**, 11055 (2003)

3. Fountoulakis, N.: *Doctor of Philosophy Thesis*. St. Hugh's College, Oxford. Advisor: C. McDiarmid
4. Interian, Y. *Approximation algorithm for random Max Sat*. 7th International Conference on Theory and Applications of Satisfiability Testing (SAT '04), Vancouver, Canada, 10-13, May 2004
5. Heule, M., Van Maaren, H.: *Observed lower bound for random 3-SAT phase transition density using linear programming*. 8th International Conference on Theory and Applications of Satisfiability Testing (SAT '05), Springer LNCS 3569 (2005), 122-134

## 0.6 A. C. Kaporis, L. M. Kirousis, E. G. Lalas

*“The probabilistic analysis of a greedy satisfiability algorithm”*

**Random Structures & Algorithms, to be published**

1. Achlioptas, D. Moore, C.: *The asymptotic order of the random  $k$ -SAT threshold*. Proc: 43rd Annual IEEE Symposium on Foundations of Computer Science (FOCS '02), Vancouver, Canada, November 16-19, 2002, 779-788
2. Achlioptas, D. Moore, C.: *Random  $k$ -SAT: Two Moments Suffice to Cross a Sharp Threshold*. SIAM Journal on Computing, to appear
3. Achlioptas, D., Naor, A., Naor, A., Peres, Y.: *Rigorous location of phase transitions in hard optimization problems*. **Nature** 435, 759-764, (9 June 2005)
4. Achlioptas, D., Peres, Y.: *The threshold for random  $k$ -SAT is  $2^k(\ln 2 + o(1))$* . Proc: 35th Annual ACM Symposium on Theory of Computing (STOC '03).  
Journal version: **Journal of the American Mathematical Society**, 17 (2004), 947-973
5. Alekhnovitch, M., Sasson, E. B.: *Linear upper bounds for random walk on small density random 3-CNFs*. In Proc: 44th Annual IEEE Symposium on Foundations of Computer Science (FOCS '03), 352-361
6. Atserias, A.: *On sufficient conditions for unsatisfiability of random formulas*, **Journal of the Association of Computing Machinery (JACM)**, (51), 2, 281-311, (2004)
7. Atserias, A.: *Definability on a random 3-CNF formula*. In Proc: 20th IEEE Symposium on Logic in Computer Science (LICS '05)
8. Battaglia, D., Kola, M., Zecchina, R.: *Minimizing energy below the glass thresholds*, Physical Review E (Statistical, Nonlinear, and Soft Matter Physics) Phys. Rev. E 70, 036107 (2004)
9. Beame, P.: *Satisfiability and Unsatisfiability: Proof complexity and Algorithms*. Invited talk in: 8th International Conference on Theory and Applications of Satisfiability Testing (SAT '05), June 19th-23rd 2005 University of St. Andrews Conference Centre St. Andrews, Scotland

10. Boufkhad, Y., Dubois, O., Interian, Y., Selman., B.: *Regular Random k-SAT: Properties of balanced formulas*. Journal of Automated Reasoning, 2005
11. Braunstein, A., Mezard, M., Zecchina, R.: *Survey propagation: An algorithm for satisfiability*. Random Structures & Algorithms, (27), Issue 2, 201–226, (2005)
12. Chen., H. Interian, Y.: *A Model for Generating Random Quantified Boolean Formulas*. Proc 19th International Joint Conference on Artificial Intelligence (IJCAI '05), 2005, Edinburgh, Scotland
13. Chen., H.: *An Algorithm for SAT Above the Threshold*. Sixth International Conference on Theory and Applications of Satisfiability Testing, (SAT '03), S. Margherita Ligure - Portofino, Italy
14. Cocco, S., Monasson, R.: *Heuristic average-case analysis of the backtrack resolution of random 3-satisfiability instances*. Theoretical Computer Science archive, (320) , Issue 2-3, (2004),345 – 372
15. Cocco, S., Monasson, R.: *Restarts and exponential acceleration of the DLLP algorithm: a large deviation analysis of the generalized unit clause heuristic for random 3-SAT*. J. Phys. A 36, 11055 (2003)
16. Cocco, S., Ein-Dor, L., Monasson. R.: *Analysis of backtracking procedures for random decision problems* Chapter for *New optimization algorithms in physics*. Eds: A. Hartmann, H. Rieger, Wiley (2004)
17. Cocco, S., Monasson, R., Montanari, A., Semerjian, G.: *Approximate analysis of search algorithms with physical methods*. To appear in: Special Volume on Computational Complexity and Statistical Physics, Santa Fe Institute of Technology, Academic Press. . Available at <http://www.lpt.ens.fr/monasson/prep.html>
18. Cooper, C., Frieze, A.M., Sorkin, G.B.: *A note on random 2-SAT with prescribed literal degrees* 13th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA '02) 316–320
19. Connamacher, H., Molloy, M.: *The Exact Satisfiability Threshold for a Potentially Intractable Random Constraint Satisfaction Problem*. In Proc: 45th Annual IEEE Symposium on Foundations of Computer Science (FOCS'04) (00), 590 – 599
20. Coppersmith, D., Gamarnik, D., Hajiaghayi, M., Sorkin, G.: *Random MAX 2-SAT and MAX CUT* 14th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA '03). Random Structures and Algorithms, (24), Issue 4 , 502–545
21. Creignou, N., Daude, H., Dubois, O.: *Approximating the Satisfiability Threshold for Random k-XOR-formulas* Combinatorics, Probability and Computing, (12), Issue 2
22. Creignou, N., Daude, H., Dubois, O.: *Generalized satisfiability problems: minimal elements and phase transitions*, Theoretical Computer Science, (302), Issue 1-3

23. Cruz, R.: *Upper bound on the non-colorability threshold of the  $2+p$ -COL problem* 2nd Brazilian Symposium on Graphs, Algorithms and Combinatorics April 27-29, 2005 Angra dos Reis (Rio de Janeiro), Brazil (GRACO 05)
24. Ein-Dor, L., Monasson, R.: *The dynamics of proving uncolourability of large random graphs. I. Symmetric Colouring Heuristic.* J. Phys. A 36, 11055 (2003)
25. Deroulers, S., Monasson, R.: *Critical behavior of combinatorial search algorithms, and the unitary-propagation universality class.* Phys. Rev. E 69, 016126 (2004).
26. Deroulers, S., Monasson, R.: *Criticality and universality of the Unit-Propagation search rule.* Eur. Phys. J. B.
27. Dubois, O., Boufkhad, Y., Mandler, J.: *Typical random 3-SAT formulae and the satisfiability threshold.* 11th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA '00)
28. Boufkhad, Y., Dubois, O., Interian, Y., Selman, B.: *Regular Random  $k$ -SAT: Properties of balanced formulas.* Journal of Automated Reasoning, 2005.
29. Feige, U., Ofek, E.: *Easily refutable sub formulas of large random 3-CNF formulas.* In Proc: 31st International Colloquium on Automata, Languages and Programming (ICALP' 04), 519–530
30. Feige, U., Vilenchik, D.: *A local search algorithm for 3SAT.* TR, Wisdom archive, Weizmann Institute.
31. Flaxman, A.: *A spectral technique for random satisfiable 3CNF formulas* 14th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA '03)
32. Flaxman, A.: *A sharp threshold for a random constraint satisfaction problem.* Discrete Mathematics 285(1-3): 301-305 (2004)
33. Fournier, N. G.: *Value-Distribution for constraint satisfaction problems.* A thesis submitted to the University of Manchester for the degree of Doctor of Philosophy. Advisor: J. Shapiro.
34. Friedman, J. Goerdts, A., Krivelevich, M.: *Recognizing more unsatisfiable random  $k$ -SAT instances efficiently.* In Proc.: 28th International Colloquium on Automata, Languages and Programming (ICALP ' 01), LNCS 2076, 310–321, (2001)
35. Gamarnik, D.: *Linear Phase Transition in Random Linear Constraint satisfaction Problems,* Discrete Mathematics and Theoretical Computer Science AC, 2003, 113-126
36. Hajiaghayi, M., Sorkin, G.: *The Satisfiability Threshold of Random 3-SAT Is at least 3.52.* IBM TR: RC22942, (2003)
37. Heule, M., Van Maaren, H.: *Observed lower bound for random 3-SAT phase transition density using linear programming.* 8th International Conference on Theory and Applications of Satisfiability Testing (SAT '05), Springer LNCS 3569 (2005), 122-134.

38. Interian, Y. *Approximation algorithm for random Max Sat*. 7th International Conference on Theory and Applications of Satisfiability Testing (SAT '04), Vancouver, Canada, 10-13 May 2004
39. Interian, Y.: *Regular random  $k$ -SAT: properties of balanced formulas*. SAT 2005. To appear in Special issue of the Journal of Automated Reasoning.
40. Kautz, H., Selman, B.: *The State of SAT*, Discrete and Applied Mathematics, to appear.
41. Kalapala, V.: *A compilation of results on Phase Transitions, Scale-Invariance*. Master of Science Thesis, University of New Mexico, Albuquerque, New Mexico. Advisor: C. Moore.
42. Kalapala, V., Moore, C.: *The phase transition in exact cover*. <http://arxiv.org/abs/cs.CC/0508037>
43. Krivelevich, M., Vilenchik, D.: *Solving random satisfiable 3CNF formulas in expected polynomial time*. In Proc: ACM-SIAM Symposium on Discrete Algorithms (SODA 06), Miami, Florida, USA.
44. E. Maneva, E. Mossel, M. Wainwright *A New Look at Survey Propagation and its Generalizations*. In Proc: 16th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA '05)
45. Mezard, M.: *Glass Phases in Optimization Problems*, Invited talk to: KAVLI INSTITUTE FOR THEORETICAL PHYSICS, Colloquia and Special Seminars. Santa Barbara campus, University of California, USA.  
<http://www.kitp.ucsb.edu/inside/>
46. Mezard, M., Parisi, G., Zecchina, R.: *Analytic and algorithmic solution of random satisfiability problems*. **Science**, 297 (5582) (2002) 812-815
47. Mezard, M., Zecchina, R.: *Random  $K$ -satisfiability problem: From an analytic solution to an efficient algorithm*. Physical Review E, 66, (5) (2002)
48. Molloy, M.: *When does the giant component bring unsatisfiability?*, Combinatorica (to appear).
49. Monasson, R.: *A generating function method for the average-case analysis of DPLL*. Proc: 8th. International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX '05) and 9th International Workshop on Randomization and Computation (RANDOM '05), 22-24 August 2005, Soda Hall, UC Berkeley
50. Oghlan, A.C., Goerdt, A., Lanka, A., Schädlich, F.: *Techniques from combinatorial approximation algorithms yield efficient algorithms for random  $2k$ -SAT*. in Proc. FCT 2003 15-26. Also, in Theoretical Computer Science, (329), Issue 1-3, 1-45 (2004)
51. Puyhaubert, V.: *Generating function and the satisfiability threshold*. Discrete Mathematics and Theoretical Computer Science (DMTCS), 6(2): 425-436, 2004

52. Puyhaubert, V.: *Doctorate These de l'Ecole Polytechnique*, Advisors: Dubois, O., Noy, M., (2005)
53. Sang, T., Beame, P., Kautz, H.: *Heuristics for Fast Exact Model Counting*. In Proc.: 8th International Conference on Theory and Applications of Satisfiability Testing (SAT '05), 226–240
54. Semerjian, G., Monasson, R.: *Relaxation and Metastability in the RandomWalkSAT search procedure*. Physical Review E 67, (066103) 2003.
55. Seitz, S., Orponen, P.: *An efficient local search method for random 3-satisfiability*. In Proc. 18<sup>th</sup> Annual IEEE Symposium on Logic in Computer Science (LICS '03) affiliated Workshop on Typical case complexity and phase transitions, Ottawa, Canada.
56. Welzl, E.: *Boolean Satisfiability Combinatorics and Algorithms*, ETH Zurich
57. Wilson, D.B.: *On the critical exponents of random k-SAT*. Random Structures & Algorithms, 21 (2) (2002) 182-195

**0.7 A. C. Kaporis, L. M. Kirousis, E. G. Lalas**  
**“Selecting complementary pairs of literals”**  
**Electronic Notes in Discrete Mathematics (ENDM), Elsevier**

1. Achlioptas, D., Haixia, J., Moore, C.: *Hiding satisfying assignments: two are better than one*. Proc: 19th National Conference on Artificial Intelligence (AAAI '04), July 25-29, 2004, San Jose, California, 131-136
2. Achlioptas, D. Moore, C.: *Random k-SAT: Two Moments Suffice to Cross a Sharp Threshold*. SIAM Journal on Computing, to appear.
3. Boufkhad, Y., Dubois, O., Interian, Y., Selman, B.: *Regular Random k-SAT: Properties of balanced formulas*. Journal of Automated Reasoning, 2005
4. Connamacher, H.: *A random constraint satisfaction problem that seems hard for DPLL*. 7th International Conference on Theory and Applications of Satisfiability Testing (SAT '04), Vancouver, Canada, 10-13 May 2004
5. Connamacher, H., Molloy, M.: *The Exact Satisfiability Threshold for a Potentially Intractable Random Constraint Satisfaction Problem*. In Proc: 45th Annual IEEE Symposium on Foundations of Computer Science (FOCS'04) (00), 590 – 599
6. Feige, U., Ofek, E.: *Easily refutable subformulas of large random 3-CNF formulas*. In Proc: 31st International Colloquium on Automata, Languages and Programming (ICALP' 04), 519–530
7. Hajiaghayi, M., Sorkin, G.: *The Satisfiability Threshold of Random 3-SAT Is at least 3.52*. IBM TR: RC22942, (2003)
8. Hajiaghayi, M., J. Kim.: *Tight Bounds For Random MAX 2-SAT*. Submitted to Random Structures & Algorithms

9. Heule, M., Van Maaren, H.: *Observed lower bound for random 3-SAT phase transition density using linear programming*. 8th International Conference on Theory and Applications of Satisfiability Testing (SAT '05), Springer LNCS 3569 (2005), 122-134.
  10. Interian, Y. *Approximation algorithm for random Max Sat*. 7th International Conference on Theory and Applications of Satisfiability Testing (SAT '04), Vancouver, Canada, 10-13 May 2004
  11. Moore, C., Istrate, G., Demopoulos, D., Vardi. M.: *A continuous-discontinuous second-order transition in the Satisfiability of random-horn sat formulas*. Proc. RANDOM 2005, to appear.
  12. Oghlan, A.C., Goerdt, A., Lanka.: *Strong refutation heuristics for random k-SAT*, In Proc.: 8th International Workshop on Randomization and Computation (RANDOM 04), Cambridge, MA, USA, August 22-24, LNCS 3122, Springer
  13. Oghlan, A.C., Goerdt, A., Lanka, A., Schädlich. F.: *Techniques from combinatorial approximation algorithms yield efficient algorithms for random 2k-SAT*. in Proc. FCT 2003 15-26. Theoretical Computer Science, (329), Issue 1-3, 1-45 (2004)
- 0.8 J. Díaz, G. Grammatikopoulos, A.C. Kaporis, L.M. Kirousis, X. Pérez, D.G. Sotiropoulos**  
***“5-regular graphs are 3-colorable with uniformly positive probability”***  
**13th Annual European Symposium on Algorithms (ESA '05)**
1. G. Kemkes and N. Wormald: On the chromatic number of a random 5-regular graph. Technical Report, University of Waterloo

## 1 Full list of citations

1. Achlioptas, D., Haixia, J., Moore, C.: *Hiding satisfying assignments: two are better than one*. Proc: 19th National Conference on Artificial Intelligence (AAAI '04), July 25-29, 2004, San Jose, California, 131-136
2. Achlioptas, D., Kirousis, L.M., Kranakis, E., Krizanc, D.: *Rigorous results for  $(2+p)$ -SAT*. Theoretical Computer Science, 265 (1-2) (2001) 109-129
3. Achlioptas, D. Moore, C.: *The asymptotic order of the random k -SAT threshold*. Proc: 43rd Annual IEEE Symposium on Foundations of Computer Science (FOCS '02), Vancouver, Canada, November 16-19, 2002, 779-788
4. Achlioptas, D. Moore, C.: *Almost all graphs with average degree 4 are 3-colorable*. Proc. 34th Annual ACM Symposium on Theory of Computing (STOC '02) 199-208  
 Journal version: Journal of Computer and System Sciences 67(2), 441-471, 2003
5. Achlioptas, D. Moore, C.: *Random k-SAT: Two Moments Suffice to Cross a Sharp Threshold*. SIAM Journal on Computing, to appear.

6. Achlioptas, D., Naor, A., Naor, Y., Peres, Y.: *Rigorous location of phase transitions in hard optimization problems*. **Nature** **435**, 759-764, (9 June 2005)
7. Achlioptas, D., Peres, Y.: *The threshold for random  $k$ -SAT is  $2^k(\ln 2 + o(1))$* . Proc: 35th Annual ACM Symposium on Theory of Computing (STOC '03).  
Journal version: **Journal of the American Mathematical Society** **17** (2004), 947–973.
8. Alekhnovitch, M., Sasson, E. B.: *Linear upper bounds for random walk on small density random 3-CNFs*. In Proc: 44th Annual IEEE Symposium on Foundations of Computer Science (FOCS '03), 352–361.
9. Armeni, S., Christodoulakis, D., Kostopoulos, I., Kountrias, P., Stamatiou, Y., Xenos, M.: *An Information Hiding Method Based on Computational Intractable Problems*. Panhellenic Conference on Informatics 2001: 262–278
10. Atserias, A.: *On sufficient conditions for unsatisfiability of random formulas*, **Journal of the ACM** **51**, 2, 281-311, March 2004
11. Atserias, A.: *Definability on a random 3-CNF formula*. In Proc: 20th IEEE Symposium on Logic in Computer Science (LICS '05).
12. Bailey, D., Dalmau, V., Kolaitis, P.G.: *Phase transitions at PP-complete problems*. Expanded talk of the International Conference on Artificial Intelligence (IJCAI '01).
13. Battaglia, D., Kola, M., Zecchina, R.: *Minimizing energy below the glass thresholds*, Physical Review E (Statistical, Nonlinear, and Soft Matter Physics) Phys. Rev. E **70**, 036107 (2004)
14. Braunstein, A., Mezard, M., Zecchina, R.: *Survey propagation: An algorithm for satisfiability*. Random Structures & Algorithms, (27), Issue 2, 201–226, (2005)
15. Braunstein, A., Mulet, R., Pagnani, A., Weigt, M., Zecchina, R.: *Polynomial iterative algorithms for coloring and analyzing random graphs*. Phys. Rev. E (68), 036702 (2003)
16. Beacham, A. D.: *The Complexity of Problems without Backbones*, Master Thesis, University of Alberta. Under the supervision of Prof. Joseph Cullberson (2000)
17. Beame, P.: *Satisfiability and Unsatisfiability: Proof complexity and Algorithms*. Invited talk in: 8th International Conference on Theory and Applications of Satisfiability Testing (SAT '05), June 19th-23rd 2005 University of St. Andrews Conference Centre St. Andrews, Scotland.
18. Yacine Boufkhad, Olivier Dubois, Yannet Interian, and Bart Selman. *Regular Random  $k$ -SAT: Properties of balanced formulas*. Journal of Automated Reasoning, 2005.
19. Chen, H.: *An Algorithm for SAT Above the Threshold*. Sixth International Conference on Theory and Applications of Satisfiability Testing, (SAT '03), S. Margherita Ligure - Portofino, Italy.

20. Chen., H. Interian, Y.: *A Model for Generating Random Quantified Boolean Formulas.* Proc 19th International Joint Conference on Artificial Intelligence (IJCAI '05), 2005, Edinburgh, Scotland.
21. Creignou, N., Daude, H., Dubois, O.: *Approximating the Satisfiability Threshold for Random  $k$ -XOR-formulas* Combinatorics, Probability and Computing, (12), Issue 2
22. Creignou, N., Daude, H., Dubois, O.: *Generalized satisfiability problems: minimal elements and phase transitions,* Theoretical Computer Science, Volume 302, Issue 1-3
23. Cocco, S., Monasson, R.: *Heuristic average-case analysis of the backtrack resolution of random 3-satisfiability instances.* Theoretical Computer Science archive, (320) , Issue 2-3, (2004),345 – 372
24. Cocco, S., Monasson, R.: *Restarts and exponential acceleration of the DLLP algorithm: a large deviation analysis of the generalized unit clause heuristic for random 3-SAT.* J. Phys. A 36, 11055 (2003).
25. Cocco, S., Ein-Dor, L., Monasson. R.: *Analysis of backtracking procedures for random decision problems* Chapter for *New optimization algorithms in physics.* Eds: A. Hartmann, H. Rieger, Wiley (2004)
26. Cocco, S., Monasson, R., Montanari, A., Semerjian, G.: *Approximate analysis of search algorithms with physical methods.* To appear in: Special Volume on Computational Complexity and Statistical Physics, Santa Fe Institute of Technology, Academic Press. . Available at <http://www.lpt.ens.fr/monasson/prep.html>
27. Cooper, C., Frieze, A.M., Sorkin, G.B.: *A note on random 2-SAT with prescribed literal degrees* 13th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA '02) 316–320
28. Connamacher, H.: *A random constraint satisfaction problem that seems hard for DPLL.* 7th International Conference on Theory and Applications of Satisfiability Testing (SAT '04), Vancouver, Canada, 10-13 May 2004
29. Connamacher, H., Molloy, M.: *The Exact Satisfiability Threshold for a Potentially Intractable Random Constraint Satisfaction Problem.* In Proc: 45th Annual IEEE Symposium on Foundations of Computer Science (FOCS'04) (00), 590 – 599
30. Coppersmith, D., Gamarnik, D., Hajiaghayi, M., Sorkin, G.: *Random MAX 2-SAT and MAX CUT* 14th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA '03). Random Structures and Algorithms, (24), Issue 4 , 502–545
31. Cruz, R.: *Upper bound on the non-colorability threshold of the  $2+p$ -COL problem* 2nd Brazilian Symposium on Graphs, Algorithms and Combinatorics April 27-29, 2005 Angra dos Reis (Rio de Janeiro), Brazil (GRACO 05)
32. Ein-Dor, L., Monasson, R.: *The dynamics of proving uncolourability of large random graphs. I. Symmetric Colouring Heuristic.* J. Phys. A 36, 11055 (2003)

33. Dubois, O., Boufkhad, Y., Mandler, J.: *Typical random 3-SAT formulae and the satisfiability threshold*. In Proc.: 11th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA '00) Available at <ftp://ftp.eccc.uni-trier.de/pub/eccc/reports/2003/TR03-007/index.html>
34. Dubois, O., Mandler, J.: *On the non-3-colourability of random graphs*. Preprint. Available at <http://xxx.arxiv.cornell.edu/list/math/0209>
35. Deroulers, S., Monasson, R.: *Critical behavior of combinatorial search algorithms, and the unitary-propagation universality class*. Phys. Rev. E 69, 016126 (2004).
36. Deroulers, S., Monasson, R.: *Criticality and universality of the Unit-Propagation search rule*. Eur. Phys. J. B.
37. Feige, U., Ofek, E.: *Easily refutable subformulas of large random 3-CNF formulas*. In Proc: 31st International Colloquium on Automata, Languages and Programming (ICALP' 04), 519–530
38. Feige, U., Vilenchik, D.: *A local search algorithm for 3SAT*. TR, Wisdom archive, Weizmann Institute.
39. Flaxman, A.: *A spectral technique for random satisfiable 3CNF formulas* 14th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA '03)
40. Flaxman, A.: *A sharp threshold for a random constraint satisfaction problem*. Discrete Mathematics 285(1-3): 301-305 (2004)
41. Fountoulakis, N., McDiarmid, C.: *Upper bounds on the non-3-colourability threshold of random graphs*. Discrete Mathematics and Theoretical Computer Science, 5 (1) (2002) 205–225
42. Fountoulakis, N.: *Doctor of Philosophy Thesis*. St. Hugh's College, Oxford. Advisor: C. McDiarmid.
43. Fournier, N. G.: *Value-Distribution for constraint satisfaction problems*. A thesis submitted to the University of Manchester for the degree of Doctor of Philosophy. Advisor: J. Shapiro.
44. Friedman, J. Goerdt, A., Krivelevich, M.: *Recognizing more unsatisfiable random  $k$ -SAT instances efficiently*. In Proc.: 28th International Colloquium on Automata, Languages and Programming (ICALP ' 01), LNCS 2076, 310–321, (2001)
45. Gamarnik, D.: *Linear Phase Transition in Random Linear Constraint satisfaction Problems*, Discrete Mathematics and Theoretical Computer Science AC, 2003, 113-126
46. Hajiaghayi, M., Sorkin, G.: *The Satisfiability Threshold of Random 3-SAT Is at least 3.52*. IBM TR: RC22942, (2003)
47. Hajiaghayi, M., J. Kim.: *Tight Bounds For Random MAX 2-SAT*. Submitted to Random Structures & Algorithms

48. Heule, M., Van Maaren, H.: *Observed lower bound for random 3-SAT phase transition density using linear programming*. 8th International Conference on Theory and Applications of Satisfiability Testing (SAT '05), Springer LNCS 3569 (2005), 122-134.
49. Interian, Y. *Approximation algorithm for random Max Sat*. 7th International Conference on Theory and Applications of Satisfiability Testing (SAT '04), Vancouver, Canada, 10-13 May 2004
50. Interian, Y.: *Regular random k-SAT: properties of balanced formulas*. SAT 2005. To appear in Special issue of the Journal of Automated Reasoning.
51. Kautz, H., Selman, B.: *The State of SAT*, Discrete and Applied Mathematics, to appear.
52. Kalapala, V.: *A compilation of results on Phase Transitions, Scale-Invariance*. Master of Science Thesis, University of New Mexico, Albuquerque, New Mexico.
53. Kalapala, V., Moore, C.: *The phase transition in exact cover*. <http://arxiv.org/abs/cs.CC/0508037>.
54. Kemkes, G., Wormald, N.: *On the chromatic number of a random 5-regular graph*. Technical Report, University of Waterloo.
55. Krivelevich, M., Vilenchik, D.: *Solving random satisfiable 3CNF formulas in expected polynomial time*. In Proc: ACM-SIAM Symposium on Discrete Algorithms (SODA 06), Miami, Florida, USA.
56. E. Maneva, E. Mossel, M. Wainwright *A New Look at Survey Propagation and its Generalizations*, In Proc: 16th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA '05)
57. Mezard, M.: *Glass Phases in Optimization Problems*, Invited talk to: KAVLI INSTITUTE FOR THEORETICAL PHYSICS Colloquia and Special Seminars. Santa Barbara campus, University of California, USA. <http://www.kitp.ucsb.edu/inside/>
58. Mezard, M., Zecchina, R.: *Random K-satisfiability problem: From an analytic solution to an efficient algorithm*. Physical Review E 66, (5) (2002)
59. Mezard, M., Parisi, G., Zecchina, R.: *Analytic and algorithmic solution of random satisfiability problems*. **Science** 297 (5582) (2002) 812-815
60. Molloy, M.: *Thresholds for colourability and satisfiability for random graphs and boolean formulae*. Book chapter in Surveys in Combinatorics, J. Hirschfeld (ed.), Cambridge University Press, (2001)
61. Molloy, M.: *When does the giant component bring unsatisfiability?*, Combinatorica (to appear).

62. Moore, C., Istrate, G., Demopoulos, D., Vardi, M.: *A continuous-discontinuous second-order transition in the Satisfiability of random-horn sat formulas*. Proc. RANDOM 2005, to appear.
63. Monasson, R.: *Towards an average-case analysis of backtrack procedures for random decision problems*. Manuscript.
64. Monasson, R.: *A generating function method for the average-case analysis of DPLL*. Proc: 8th. International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX '05) and 9th International Workshop on Randomization and Computation (RANDOM '05), 22-24 August 2005, Soda Hall, UC Berkeley
65. Mulet, R., Pagnani, A., Weigt, M., Zecchina, R.: *Coloring random graphs*. **Physical Review Letters** **89** (26) (2002)
66. Nordström, J.: *Stålmarck's method versus Resolution: A comparative theoretical study*. Master Thesis (Under the supervision of Professor Joseph Håstad). Department of Numerical Analysis & Computing Science, Royal Institute of Technology.
67. Oghlan, A.C., Goerdt, A., Lanka.: *Strong refutation heuristics for random  $k$ -SAT*. In Proc.: 8th International Workshop on Randomization and Computation (RANDOM 04), Cambridge, MA, USA, August 22-24, LNCS 3122, Springer
68. Oghlan, A.C., Goerdt, A., Lanka, A., Schädlich, F.: *Techniques from combinatorial approximation algorithms yield efficient algorithms for random  $2k$ -SAT*. Theoretical Computer Science, (329), Issue 1-3, 1–45 (2004).
69. Pelc, A.: *Searching games with errors - fifty years of coping with liars*. Theoretical Computer Science, 270 (1-2) (2002) 71–109
70. Promel, H.J., Taraz.: *Random graphs, random triangle-free graphs, and random partial orders* A Computational Discrete Mathematics: Advanced Lecture Notes in Computer Science, 2122 (2001) 98–118
71. Puyhaubert, V.: *Generating function and the satisfiability threshold*. Discrete Mathematics and Theoretical Computer Science (DMTCS), 6(2): 425-436, 2004
72. Puyhaubert, V.: *Doctorate These de l'Ecole Polytechnique*, Advisors: Dubois, O., Noy, M., (2005)
73. Sang, T., Beame, P., Kautz, H.: *Heuristics for Fast Exact Model Counting*. In Proc.: 8th International Conference on Theory and Applications of Satisfiability Testing (SAT '05), 226–240
74. Seitz, S., Orponen, P.: *An efficient local search method for random 3-satisfiability*. In Proc. 18<sup>th</sup> Annual IEEE Symposium on Logic in Computer Science(LICS '03) affiliated Workshop on Typical case complexity and phase transitions, Ottawa, Canada.
75. Semerjian, G., Monasson, R.: *Relaxation and Metastability in the RandomWalkSAT search procedure*. Physical Review E, 67, (066103) 2003.

76. Welzl, E.: *Boolean Satisfiability Combinatorics and Algorithms*, ETH Zurich
77. Wilson, D.B.: *On the critical exponents of random  $k$ -SAT*. *Random Structures & Algorithms*, 21, (2) (2002) 182-195
78. Zito, M.: *An upper bound on the space complexity of random formulae in resolution*. *Rairo-Theoretical Informatics and Applications*, 36, (4) (2002) 329-339
79. Znidaric, M.: *Single-solution Random 3-SAT Instances*. Elsevier Science.  
Available at: <http://arxiv.org/list/cs.DM/05>