

Dror Weitz
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CURRENT POSITION

Postdoctoral fellow at the School of Mathematics, Institute for Advanced Study, Princeton, New Jersey.

RESEARCH INTERESTS

I maintain a wide range of interests in theoretical computer science, and in particular in intersections with other scientific fields. So far I have focused primarily on analyzing randomized algorithms for models in statistical physics by investigating connections between *phase transitions* and the running time of these algorithms.

EDUCATION

University of California at Berkeley. Ph.D. in Computer Science. Title of thesis: Mixing in time and space for discrete spin systems. Advisor: Prof. Alistair Sinclair. May 2004.

Hebrew University. B.Sc. *magna cum laude* in Computer Science and Economics, participated in a special honors program. Thesis title: Random vectors of bounded weight and their linear dependencies. Thesis advisor: Prof. Nathan Linial. June 1999.

AWARDS

Dissertation nominated by UC Berkeley for the ACM Doctoral Dissertation Award in Computer Science and Engineering. (The department nominates two dissertations each year.) September 2004.

Bernard Friedman Memorial Prize in Applied Mathematics, UC Berkeley, 2004.

C.V. Ramamoorthy Distinguished Research Award (for outstanding research in Computer Science), UC Berkeley, 2004.

Outstanding Graduate Student Instructor Award, UC Berkeley, Fall 2002.

Regents Graduate Fellowship, UC Berkeley, 1999.

Dean's prize, Hebrew University, 1997.

Rector's prize, Hebrew University, 1996.

Amirim special honors program, Hebrew University, 1996-1999.

WORK EXPERIENCE

Microsoft Research (Redmond). Research intern in the Theory group, Summer 2001.

Zapex Research Ltd (currently a division in Zoran Corporation). Research engineer in the Algorithms group. Developed algorithms for video encoders, Israel, April 1998 to June 1999.

NDS Israel. Programmer. Developed software for quality verification of programmed smart cards, Israel, July 1996 to June 1997.

PUBLICATIONS

- D. WEITZ, “Combinatorial criteria for uniqueness of Gibbs measures,” accepted for publication in *Random Structures and Algorithms*, Nov. 2004.
- F. MARTINELLI, A. SINCLAIR and D. WEITZ, “Fast mixing for independent sets, colorings and other models on trees,” *Proceedings of the 15th ACM-SIAM Symposium on Discrete Algorithms (SODA)*, 2004, pp. 456–465.
- F. MARTINELLI, A. SINCLAIR and D. WEITZ, “Glauber dynamics on trees: Boundary conditions and mixing time,” *Communications in Mathematical Physics* **250** (2004), pp. 301–334. Extended abstract appeared as “The Ising model on trees: Boundary conditions and mixing time,” in *Proceedings of the 44th IEEE Symposium on Foundations of Computer Science (FOCS)*, 2003, pp. 628–639.
- M. DYER, A. SINCLAIR, E. VIGODA and D. WEITZ, “Mixing in time and space for lattice spin systems: A combinatorial view,” *Random Structures and Algorithms* **24** (2004), pp. 461–479. Extended abstract appeared in *Proceedings of the 6th International workshop on Randomization and Approximation Techniques (RANDOM)*, 2002, pp. 149–163.
- Z. BAR-YOSSEF, A. BERG, S. CHIEN, J. FAKCHAROENPHOL, and D. WEITZ, “Approximating aggregate queries about web pages via random walks,” *Proceedings of the 26th International Conference on Very Large Databases (VLDB)*, 2000, pp. 535–544.

TALKS PRESENTED

“Ising model on trees: Boundary conditions and mixing time.”

- University of Roma Tre, June 2004.
- Microsoft Research, January 2004.
- IEEE Symposium on Foundations of Computer Science (FOCS), October 2003.
- Rutgers University / DIMACS, October 2003.
- Princeton University, October 2003.

“Fast mixing for Independent sets, colorings and other models on trees.”

- ACM-SIAM Symposium on Discrete Algorithms (SODA), January 2004.

“Mixing in time and space for lattice spin systems: A combinatorial view.”

- International Workshop on Randomization and Approximation Techniques in Computer Science (RANDOM), September 2002.
- Institute for Advanced Study, Princeton, September 2002.

“Criteria for decay of correlations in Gibbs measures.”

- Microsoft Research, February 2001.

“Approximating aggregate queries about web pages via random walks.”

- IBM Almaden Research Center, March 2000.

REFERENCES

Alistair Sinclair, Professor of Computer Science, UC Berkeley.

Fabio Martinelli, Professor of Mathematics, University of Roma Tre.

Richard Karp, Professor of Computer Science, Mathematics and Bioengineering, UC Berkeley.

Yuval Peres, Professor of Statistics, UC Berkeley. Institute of Technology.

Noam Oren, Algorithms group manager, Mobile Division, Zoran Corporation.