

Talk titles and schedule of the 1994 Oberwolfach meeting on Complexity Theory.

Tagungsbericht 48/1994

Komplexitätstheorie
13. bis 19.11.1994

The 11th Oberwolfach Conference on Complexity Theory was organized by Joachim von zur Gathen (Paderborn/Toronto), Claus-Peter Schnorr (Frankfurt) and Volker Strassen (Konstanz). There were 35 participants coming from nine countries.

The 30 lectures covered a broad range of current research in complexity theory. Several talks dealt with the new theories of approximability and probabilistically checkable proofs. Another major area was the complexity of algebraic, arithmetic, geometric, and combinatorial problems. Further topics included (visual) cryptography, parallel computation, anticipating software, and quantum computation. It was an active and stimulating meeting.

Vortragsauszüge

M. Bellare:

Free bits in PCP — How low can you go?

(Joint work with O. Goldreich and M. Sudan)

A. Björner:

Topological and combinatorial methods for decision trees

S. Cook

The Relative Complexity of NP Search Problems

(Joint work with P. Beame and T. Pitassi)

U. Feige:

Towards subexponential algorithm for NP

(Joint work with J. Kilian)

M. Fürer

Lower Bounds on the Performance of Approximate Coloring Algorithms

M. Furst

Anticipating Software

J. von zur Gathen:

Permutation functions

M. Giusti:

Duality and straight-line programs

O. Goldreich:

Knowledge Complexity

(Based on joint works with E. Petrank and R. Ostrovsky)

E. Grädel:

The power of syntactic criterial for approximability

(Joint work with K. Compton)

D. Grigoriev:

Complexity lower bounds for extended classes of computation trees

J. Heintz:

Much ado about θ

(Joint work with J. Morgenstern)

E. Kaltofen:

Subquadratic-Time Factoring of Polynomials over Finite Fields

(Joint work with V. Shoup)

M. Karpinski:

Lower bounds for randomized computation trees

(Joint work with D. Grigoriev)

F. Meyer auf der Heide:

Hashing Strategies for Simulating Shared Memory

(The talk surveys joint work with R. Karp, M. Luby, M. Dietzfelbinger, C. Scheideler, A. Czumaj and V. Stemmann on Simulations of PRAMs on Distributed Memory Machines (DMMs).)

S. Micali:

CS Proofs

N. Nisan:

Symmetric Logspace is Closed Under Complement

(Joint work with A. Ta-Shma)

T. Recio:

Complexity of semialgebraic sets

R. Reischuk:

Asymptotics of Average Circuit Complexity

(Joint work with A. Jacoby and C. Schindelhauer)

H. Ritter:

Construction of a shortest lattice vector in any $\|\cdot\|_p$ -norm

C. Schnorr:

Black Box Cryptanalysis of Hash Networks

(Joint work with S. Vaudenay)

A. Schönhage:

Speed-ups for algorithms with exact division

(Joint work with E. Vetter)

A. Shamir:

Visual cryptography

(Joint work with M. Naor)

A. Shokrollahi:

Computation of irregular indices

A. Sinclair:

Monte Carlo algorithms in physics

J. Stern:

k-transitivity of random graphs and an application to cryptography

(Joint work with J. Friedmann, A. Joux, Y. Roichman and J.-P. Tillich)

M. Sudan:

Linearity Testing

(Joint work with M. Bellare and D. Coppersmith)

U. Vazirani:

Quantum Computation

I. Wegener:

Hierarchy results for restricted branching programs

V. Weispfenning:

On the complexity of parametric optimization problems

Berichterstatterin: S. Hartlieb

Monday, 14.11.

Chair: A. Shamir

9:30-9:40	Opening	
9:40-10:40	S. Micali	CS proofs and program correctness
11:00-11:40	D. Grigoriev	Complexity lower bounds for extended classes of computation trees
11:45-12:25	E. Grädel	The power of syntactic criteria for approximability
Chair: M. Furst		
15:30-16:10	O. Goldreich	Knowledge Complexity
16:15-16:45	M. Bellare	Free bits in PCP
17:05-17:45	M. Fürer	On the hardness of approximating the chromatic number
17:50-18:30	M. Karpinski	Lower bounds for randomized computation trees

Tuesday, 15.11.

Chair: S. Micali

9:00-9:50	S. Cook	The relative complexity of NP search problems
9:55-10:30	I. Wegener	Hierarchy results for restricted branching programs
10:50-11:40	M. Sudan	Linearity Testing
11:45-12:15	R. Reischuk	Asymptotics of average circuit complexity
Chair: M. Giusti		
15:30-16:00	A. Schönhage	Speed-ups for algorithms with exact division
16:05-16:35	J. von zur Gathen	Permutation Functions
16:55-17:25	A. Shokrollahi	Computation of indices of irregularity
17:30-17:55	T. Recio	Complexity of semialgebraic sets

Wednesday, 16.11.

Chair: A. Schönhage

9:15-9:45	A. Shamir	Visual cryptography
9:50-10:30	U. Feige	Towards subexponential algorithms for NP
10:50-11:10	A. Björner	Topological and combinatorial methods for linear decision trees
11:15-11:55	U. Vazirani	Quantum computation

Thursday, 17.11.

Chair: S. Cook

9:15-9:55	A. Sinclair	Monte Carlo algorithms in physics
10:05-10:50	M. Giusti	Duality and straight line programs
11:10-11:40	J. Heintz	The intrinsic complexity of geometric elimination
Chair: E. Kaltofen		
16:00-16:30	C.P. Schnorr	Black box cryptanalysis
16:35-17:05	M. Furst	Anticipating Software
17:25-17:55	N. Nisan	Symmetric log space is closed under complement
18:00-18:30	H. Ritter	Construction of a shortest lattice vector in the $\ \cdot\ _p$ -norm

Friday, 18.11.

Chair: O. Goldreich

9:30-10:00	E. Kaltofen	Subquadratic-time factoring of polynomials
10:10-10:45	V. Weispfenning	On the complexity of parametric optimization problems
11:05-11:45	F. Meyer auf der Heide	Hashing Strategies for Simulating Shared Memory
11:50-12:20	J. Stern	k-transitivity of random graphs and an application to cryptography