

Seminar “Graphs and Algorithms”

List of papers

1. T. Chan, **Improved deterministic algorithms for linear programming in low dimensions**
2. S. Arya and D. Mount, **A fast and simple algorithm for computing approximate Euclidean minimum spanning trees**
3. C. Annamalai, **Finding perfect matchings in bipartite hypergraphs**
4. G. Braun et al., **The matching problem has no small symmetric SDP**
5. D. Straszak and N. Vishnoi, **Natural algorithms for flow problems**
6. M. Chudnovsky et al., **Obstructions for three-coloring graphs with one forbidden induced subgraph**
7. G. Joret et al., **Sparsity and dimension**
8. F. Ruskey and A. Williams, **The coolest way to generate combinations**
9. F. Ruskey, **Adjacent interchange generation of combinations**
10. A. Proskurowski and F. Ruskey, **Generating binary trees by transpositions**
11. T. Roughgarden, **Barriers to near-optimal equilibria**
12. M. Feldman et al., **The price of anarchy in large games**
13. V. Biló et al., **The price of stability for undirected broadcast network design with fair cost allocation is constant**
14. G. Christodoulou and A. Sgouritsa, **Designing networks with good equilibria under uncertainty**
15. S. Alaei et al., **Optimal auctions vs. anonymous pricing**
16. R. Gopalakrishnan et al., **Potential games are necessary to ensure pure Nash equilibria in cost sharing games**
17. H. Chen et al., **Designing network protocols for good equilibria**
18. I. Caragiannis et al., **Efficient computation of approximate pure Nash equilibria in congestion games**
19. I. Ashlagi et al., **Mix and match: A strategyproof mechanism for multi-hospital kidney exchange**
20. O. Göbel et al., **Online independent set beyond the worst-case: Secretaries, prophets, and periods**

Important Dates

- ▶ 21.4.2016: first meeting
 - ▷ presentation of topics
- ▶ 28.4.2016: second meeting
 - ▷ assignment of topics
- ▶ 12.5.2016: Example presentations of Torsten and Max
- ▶ 19.5.2016: 5 minute presentations
 - ▷ short introduction into topic and main results
- ▶ 16.6.2016: final slides due
 - ▷ slides have to be complete
- ▶ 30.6./1.7.2016: Seminar TU Berlin

Your Talk

- ▶ **Time:** exactly 45 min
 - ▷ no outline on separate slide necessary
 - ▷ about 15 min introduction
 - ▷ about 25 min results and proof ideas
 - ▷ about 5 min conclusion
- ▶ **Media:**
 - ▷ Keynote, Powerpoint, Prezi, LaTeX-beamer, etc.
- ▶ **Goal:**
 - ▷ **Understandability**
(everyone should be able to understand everything)

Layout

- ▶ per slide: small pieces of information that are easy to digest
 - ▷ ≤ 30 words! (better ≤ 20)
 - ▷ ≤ 10 words at once! (better ≤ 5)
- ▶ “perfect” layout
 - ▷ no distractions (transitions only where helpful)
 - ▷ no typos
 - ▷ consistency, e.g., in use of upper/lowercase symbols
- ▶ avoid massive use of math symbols
(if necessary use blackboard)
- ▶ your explanation must be represented by the slides

Storyline

- ▶ at every stage of the talk it should be clear
 - ▷ what is our aim?
 - ▷ what do we know already?
 - ▷ what do we still have to show?
- ▶ try to reflect these questions in
 - ▷ layout of slides
 - ▷ language
 - ▷ repetition
 - ▷ running examples
- ▶ **rule of thumb:** first intuition, then formalisation
- ▶ examples, examples, examples, and counterexamples

Language

- ▶ use language to structure your talk
 - ▷ breaks
 - ▷ emphasis
 - ▷ repetition
 - ▷ make clear, precise and concise statements
- ▶ language should not distract
 - ▷ be calm (use language and gestures instead of a laser pointer)
 - ▷ variety is good (use intonation breaks)
 - ▷ address the audience (not the wall)
- ▶ you are the main attraction, not your slides

Practice

- ▶ you need to practice **a lot**
- ▶ practice loud with your slides (best: with projector)
- ▶ do not learn by heart (except the first three statements)
- ▶ rule of thumb: practice the full talk at least 3 times (better: ≥ 5)
 - ▶ until you feel safe
- ▶ excitement is good
- ▶ we will ask questions, when sth. is not clear
 - ▶ be prepared!

Evaluation

- ▶ your grade reflects you own work
 - ▷ story
 - storyline
 - selection of presented material
 - knowledge of the paper
 - ▷ layout
 - structure
 - figures
 - clarity
 - ▷ presentation
 - eye contact and language