

Sparse Graphs

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Outline

- ▶ Research
 - ▶ You get a paper from us
 - ▶ Read and understand it
 - ▶ Independently search for other relevant sources
- ▶ Presentation
 - ▶ Present the ideas from the paper
 - ▶ At most 45 minutes
 - ▶ Afterwards a short discussion
- ▶ Essay
 - ▶ Summarize the ideas from the paper
 - ▶ Hand in via email
 - ▶ At most 10 pages

If you want feedback to your presentation or essay email us in a timely manner.

Regular Meetings

Takes approx 1.5 hours.

- ▶ Fridays 12:15-13:45

One presentation per week

- ▶ 27.04
- ▶ 04.05
- ▶ 18.05
- ▶ 01.06
- ▶ 15.06
- ▶ 22.06
- ▶ 29.06
- ▶ 06.07
- ▶ 13.07
- ▶ 20.07

Schedule

To be announced on the website.

Possible Structure of a Presentation

- ▶ Briefly introduce the Topic.
- ▶ Why is it interesting? What are typical applications? What techniques are used?
- ▶ Give needed background knowledge. Do a quick refresh so everyone is on the same page.
- ▶ Present the paper.
- ▶ Put the result into context with other research.

Tips:

- ▶ Go sloooooowly. You took a couple months to understand the paper. Do not expect everybody to understand everything immediately.
- ▶ Keep the slides clean. Often one diagram is better than a wall of text.

Essay

- ▶ Feel free to use the same structure as for the presentation
- ▶ L^AT_EX is mandatory (tutorial:
<https://www.latex-tutorial.com/tutorials/>)

But:

- ▶ Do not simply retell the paper!

Deadlines

- ▶ For the next two weeks you can resign without any consequences. Just write us an email.
- ▶ Essay deadline: one month after presentation
- ▶ After submission: we may tell you to fix something in your essay.

The Papers

Papers

- ▶ 01. Efficient Planarity Testing
- ▶ 02. Embedding Planar Graphs Using PQ-Trees
- ▶ 03. The planar separator theorem (2)
- ▶ 04. Shortest paths in planar graphs (2)
- ▶ 05. Flows in planar graphs (2)
- ▶ 06. Embedding planar graphs on a grid
- ▶ 07. Baker's approximation scheme for planar graphs
- ▶ 08. Approximation scheme for planar graph TSP
- ▶ 09. Treewidth and its characterizations
- ▶ 10. Treewidth and combinatorial optimization
- ▶ 11. The Graph Minor Theorem
- ▶ 12. Algorithmic Meta-Theorems (2)

