

Hauptseminar Diskrete Optimierung (S2C1)

Wintersemester 2011/2012

Graphentheorie

Vortragsthemen:

- 1 Group-valued flows and k -flows for small k ([1] 6.3, 6.4)
- 2 Flow-colouring duality ([1] 6.5)
- 3 Tutte's flow conjectures ([1] 6.6)
- 4 Szemerédi's regularity lemma ([1] 7.4)
- 5 Applying the regularity lemma ([1] 7.5)
- 6 Random Graphs ([1] 11.3, 11.4)
- 7 Hamilton cycles: necessary and sufficient conditions ([1] 10.1, 10.2)
- 8 Hamilton cycles in the square of a graph ([1] 10.3)
- 9 Computing roots of graphs is hard
- 10 The chromatic number of graph powers
- 11 On the hardness of 4-coloring a 3-colorable graph
- 12 Enumerating maximal independent sets with applications to graph coloring
- 13 An $O^*(2^n)$ algorithm for graph coloring
- 14 Approximate graph coloring by semidefinite programming
- 15 Packing arborescences ([2] 10.1)
- 16 Packing branchings ([2] 10.2)

Literatur:

- [1] R. Diestel: *Graph Theory*, 3rd edition, Springer, 2005
- [2] A. Frank: *Connections in Combinatorial Optimization*, Oxford University Press, 2011.