Complexity Theory - Summary

- DTMs, NTMs, time and space complexity
- complexity classes, classes **P**, **NP**, **PSPACE**
- reductions and complete languages, **PSPACE** and TQBF
- Savitch's theorem and **PSPACE** = **NPSPACE**
- co-**NP** and languages in **NP** $\setminus$ (**P** $\cup$ **NPC**)
- log space reductions, classes **L**, **NL** und co-**NL**
- complexity of reachability in directed graphs
- theorem of Immerman and Szelepcsènyi, **NL** = co-**NL**
- hierarchy theorems and diagonalization
- oracle Turing machines
- limits of diagonalization and Theorem 6.4
- classes in the polynomial time hierarchy **PH**, definition and alternative characterizations
- probabilistic complexity classes **RP**, **ZPP**, co-**RP**
- class **BPP** and its relation to the polynomial time hierarchy