## Summary of Lecture 4

Reading: [Arora-Barak (AB)] Chap 2.2, 2.3, 2.5, 2.6; Katz's Lecture Note 3.

- The simple fact that P=CoP, whereas it is a highly non-trivial question to see the relation between NP and CoNP.
- Self-reducibility and search vs decision problem.
- The padding technique to show that if  $EXP \neq NEXP$ , then  $P \neq NP$ .
- NP-complete problems, and the "polynomial-time Karp reduction" or "many-to-one reducibility" or "polynomial-time mapping reducibility".