## Summary of Lecture 19

Reading: Katz's Lecture Note 16.

- Definition of the public randomness interactive proof systems. There are two different classes AM and MA.
- We assume AM and MA with perfect completeness. This is without loss of generality because we can turn any imperfect completeness into a perfect one by using a similar technique in the proof of  $BPP \subseteq \Sigma_2 \cap \Pi_2$ .
- Another important feature of MA is that one can change the order of AM (or MA) so that one can turn any constant number of alternating MAs (or AMs) into a single MA.
- Note that each change of the order of AM (or MA) potentially increases the size of the message polynomially. That is why we can only conduct such changes for a constant number of times.