

CS556

Objectives.

- (1) Read <https://onlinelibrary.wiley.com/doi/abs/10.1002/nla.1930>
- (2) *Theoretical bounds for algebraic multigrid performance: review and analysis*, by MacLachlan and Olson
- (3) Read Section 1.2 for a background on AMG theory
- (4) Read Section 2, up to Theorem 4

Questions.

- (1) What do we wish to bound in the case of a $V(0, 1)$ -cycle?
- (2) If we assume (5), what does this mean (in words)??
- (3) Consider equation (6). What does it mean for this to be *sharp*?
- (4) Mathematically, what is the *smoothing assumption*?
- (5) Mathematically, what is the *approximation assumption*?
- (6) Theorem 4 states that if the smoothing assumption and the approximation assumption are satisfied, then what?