CS 0368-4246: Combinatorial Methods in Algorithms (Spring 2025) May 26, 2025

Lecture 9: Expander Decompositions

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Homework Questions

1. Construct and prove the correctness of an expander decomposition algorithm, assuming you are given an algorithm that given any graph and φ in time $m^{1+o(1)}$ returns a cut of conductance at most $polylog(n) \cdot \varphi$ that is of size which is at least $OPT/polylog(n)$ where OPT is the size of the largest cut of conductance at most φ.