## Approximation Algorithms

## K. Subramani, LCSEE, West Virginia University

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## 1. Semidefinite programming applied to Max-Cut.

- (a) The Max-Cut problem.
- (b) An integer programming formulation and its linear programming relaxation.
- (c) Modeling through a quadratically constrained quadratic integer program.
- (d) Relaxation to a vector program.
- (e) Solving the vector program optimally through semidefinite programming.
- (f) A randomized rounding algorithm.
- (g) Analysis of the randomized rounding algorithm.
- (h) High probability guarantee.
- 2. Jeff's lecture on Steiner forests.