1077-68-2203 **Prasad Tetali***, 686 Cherry St., Atlanta, GA 30332-0160. *Approximaing Minimum Linear Ordering Problems.* Preliminary report.

We introduce the Minimum Linear Ordering Problem (MLOP): Given a nonnegative set function f on a finite set V, find a linear ordering on V such that the sum of the function values for all the suffixes is minimized. This problem generalizes well-known problems such as the Minimum Linear Arrangement, Min Sum Set Cover, Minimum Latency Set Cover, and Multiple Intents Ranking. Extending a result of Feige, Lovász, and Tetali (2004) on Min Sum Set Cover, we show that the greedy algorithm provides a factor 4 approximate optimal solution when the cost function f is supermodular. We also present a factor 2 rounding algorithm for MLOP with a monotone submodular cost function, using the convexity of the Lovász extension.

In addition, we provide a randomized rounding algorithm for the Min Sum Vertex Cover problem of factor 1.79, improving over the factor 2 algorithm described by Feige, Lovász, and Tetali (2004). This is joint work with Satoru Iwata (Kyoto University) and Pushkar Tripathi (Georgia Tech.) (Received September 21, 2011)