1077-15-100 **Sivaram K. Narayan*** (sivaram.narayan@cmich.edu), Department of Mathematics, Pearce Hall 218, Central Michigan University, Mount Pleasant, MI 48859. *Lower Bounds for Minimum Semi-definite Rank from Orthogonal Removal and Chordal Supergraphs.*

The minimum semi-definite rank (msr) of a graph is the minimum rank among positive semi-definite matrices with the given graph. The OS-number is a useful lower bound for msr, which arises by considering ordered vertex sets with some connectivity properties. In this talk we discuss two new interpretations of the OS-number. We first show that OS-number is also equal to the maximum number of vertices which can be orthogonally removed from a graph under certain non-degeneracy conditions. Our second interpretation of the OS-number is as the maximum possible rank of chordal supergraphs who exhibit a notion of connectivity we call isolation-preserving. These interpretations not only give insight into the OS-number, but also allow us to prove some new results. For example we show that $msr(G) = |G| - 2$ if and only if $OS(G) = |G| - 2$. (Received July 26, 2011)