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**Andrew M. Zimmer\*** (aazimmer@umich.edu). *Lower bounds for the minimum positive semidefinite rank via sign patterns.*

In this talk we develop a new lower bound for the minimum positive semidefinite rank. By construction, this new bound will always be greater or equal to a previously developed lower bound, the OS-number, and in many cases this new lower bound will be strictly greater than the OS-number. Our new lower bound is obtained by first constructing lower bounds on the rank of real positive semidefinite matrices with a given sign pattern. Then by minimizing this parameter over all sign patterns with a given zero-nonzero pattern we obtain a new lower bound for the minimum positive semidefinite rank. (Received September 14, 2010)