Keivan Hassani Monfared* (k1monfared@gmail.com) and Bryan L Shader. Existence of a nowhere-zero eigenbasis for a matrix whose graph and eigenvalues are prescribed.

In this talk we use the Jacobian method to show that for any given graph $G$ on $n$ vertices and a set of $n$ distinct real numbers $\Lambda$, there is a real symmetric matrix $A$ whose graph is $G$ and its spectrum is $\Lambda$. Then we will show that if $G$ is connected, then $A$ can always be chosen such that none of its eigenvalues have a zero entry. (Received September 12, 2014)