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Suil O* (sui1o@gsu.edu), Atlanta, GA 30308. *Edge-connectivity in regular multigraphs from eigenvalues.*

Fiedler's result stating that $\kappa(G) \geq \mu_2(G)$ for a non-complete simple graph G , stimulated a lot of research in spectral graph theory, where $\kappa(G)$ and $\mu_2(G)$ are the connectivity and the second smallest Laplacian eigenvalue of a graph G , respectively. In 2004, for a d -regular simple graph G , Chandran gave an upper bound for $\lambda_2(G)$ to guarantee that $\kappa'(G) = d$, where $\lambda_2(G)$ and $\kappa'(G)$ is the second largest eigenvalue and the edge-connectivity of a graph G , respectively. Krivelevich and Sudakov slightly improved Chandran's result. In 2010, Cioabă gave an upper bound for $\lambda_2(G)$ to guarantee that $\kappa'(G) \geq t + 1$ for any positive integer t .

In this talk, we extend Cioabă's result to multigraphs. (Received January 26, 2015)