1079-05-157 **Wiseley A Wong*** (wwong@math.udel.edu), Department of Mathematical Sciences, Newark, DE 19716, and **Sebastian M Cioaba** (cioaba@math.udel.edu), Department of Mathematical Sciences, Newark, DE 19716. *Edge-disjoint spanning trees and eigenvalues of regular graphs.*

Partially answering a question of Seymour, we show that if the second largest eigenvalue of a d-regular graph is at most $d - \frac{2k-1}{d+1}$, then the graph contains at least k edge-disjoins spanning trees (for $k = 2$ or 3). We construct examples of d-regular graphs that show that our eigenvalue bounds are essentially best possible. We conjecture that the above eigenvalue condition is sufficient for the existence of k edge-disjoint spanning trees for any $k < d/2$. (Received January 10, 2012)