1056-05-955 **Reza Zamani** (zamani@illinois.edu), Computer Science Dept., University of Illinois, Urbana, IL 61801, and **Douglas B. West*** (west@math.uiuc.edu), Mathematics Dept., University of Illinois, Urbana, IL 61801. *Spanning cycles through specified edges in bipartite graphs.*

Pósa proved that if G is an n-vertex graph in which any two nonadjacent vertices have degree sum at least $n+k$, then G has a spanning cycle containing any specified family of disjoint paths with a total of k edges. We consider the analogous problem for a bipartite graph G with n vertices and parts of equal size. Let F be a subgraph of G whose components are nontrivial paths. Let k be the number of edges in F, and let t_1 and t_2 be the numbers of components of F having odd and even length, respectively. For $n \geq 9k+4$, there is a spanning cycle in G containing F if any two nonadjacent vertices in opposite partite sets have degree-sum at least $n/2+\tau(F)$, where $\tau(F) = \lceil k/2 \rceil + \epsilon$ (here $\epsilon = 1$ if $t_1 = 0$ or if $(t_1, t_2) \in \{(1,0),(2,0)\}$, and $\epsilon = 0$ otherwise). The threshold on the degree-sum is sharp. (Received September 18, 2009)