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Atif Abuieda and **Arthur Busch*** (art.busch@notes.udayton.edu), University of Dayton, Dept. of Mathematics, Dayton, OH 45419-2316, and **R Sritharan**. *A min-max theorem for chordal bipartite graphs.*

A bipartite graph is a chain graph if it contains no induced $2K_2$. We show that when $G = (V, E)$ is a bipartite graph containing no induced cycle on six vertices, the minimum number of chain subgraphs of G needed to cover $E(G)$ is equal to the chromatic number of the complement of the square of the line graph of G . Using this result, we show that when G is chordal bipartite, the minimum number of chain subgraphs needed to cover $E(G)$ is equal to the maximum size of an induced matching in G , and that this number can be computed in polynomial time. In addition, we give an improved algorithm for certain sub-classes of chordal bipartite graphs. (Received January 29, 2008)