On the Dilworth Number of Auto-Chordal Bipartite Graphs

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(joint work with Anne Berry and Konrad Engel)

The *mirror* (or *bipartite complement*) $mir(B)$ of a bipartite graph $B = (X, Y, E)$ has the same color classes X and Y as B, and two vertices $x \in X$ and $y \in Y$ are adjacent in $mir(B)$ if and only if $xy \notin E$. A bipartite graph is *chordal bipartite* if none of its induced subgraphs is a chordless cycle with at least six vertices. In this paper, we deal with chordal bipartite graphs whose mirror is chordal bipartite as well; we call these graphs *auto-chordal bipartite graphs* (*ACB graphs* for short). We describe the relationship to some known graph classes such as interval and strongly chordal graphs and we present several characterizations of ACB graphs. We show that ACB graphs have unbounded Dilworth number, and we characterize ACB graphs with Dilworth number k.