On the antibandwidth sum of bipartite graphs

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Given a graph $G = (V, E)$, the antibandwidth sum problem is to find a bijective labelling $f : V \to \{1, \ldots, n\}$ that maximizes the sum $\sum_{v_i, v_j \in E} |f(v_i) - f(v_j)|$.

In this talk we show that the antibandwidth sum is NP-complete for general bipartite graphs. On the positive side, we show that the antibandwidth sum can be found efficiently for certain “nice” classes of bipartite graph. We also discuss an efficient algorithm that obtains an upper bound on the antibandwidth sum of an arbitrary graph.

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