

# The independent set sequence of trees

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The independent set (or stable set) sequence of a graph is the sequence whose  $k$ th term is the number of independent sets of size  $k$  in the graph. Alavi, Malde, Schwenk and Erdős studied this sequence in 1987, and showed that it can exhibit any pattern of rises and falls. They raised the question, however, of whether the independent set sequence of a tree, or more generally a forest, is always unimodal — that is, has a single peak. This intriguing question is still fairly much open; I'll survey some results around it. Some of this is joint work with Justin Hilyard.