

A family of graphs whose independence polynomials are both palindromic and unimodal

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ABSTRACT. A *stable* (or *independent*) set in a graph is a set of pairwise non-adjacent vertices. The *stability number* $\alpha(G)$ is the size of a maximum stable set in the graph G . The *independence polynomial* of G is defined by

$$I(G; x) = s_0 + s_1x + s_2x^2 + \dots + s_\alpha x^\alpha, \quad \alpha = \alpha(G),$$

where s_k equals the number of stable sets of cardinality k in G (I. Gutman and F. Harary, 1983).

In this paper, we build a family of graphs whose independence polynomials are palindromic and unimodal. We conjecture that all these polynomials are also log-concave.

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